

IOWA'S DEPARTMENT OF ENVIRONMENTAL QUALITY

SOLID WASTE MANAGEMENT PLAN
FOR IOWA

BY
SOLID WASTE MANAGEMENT DIVISION

September, 1973

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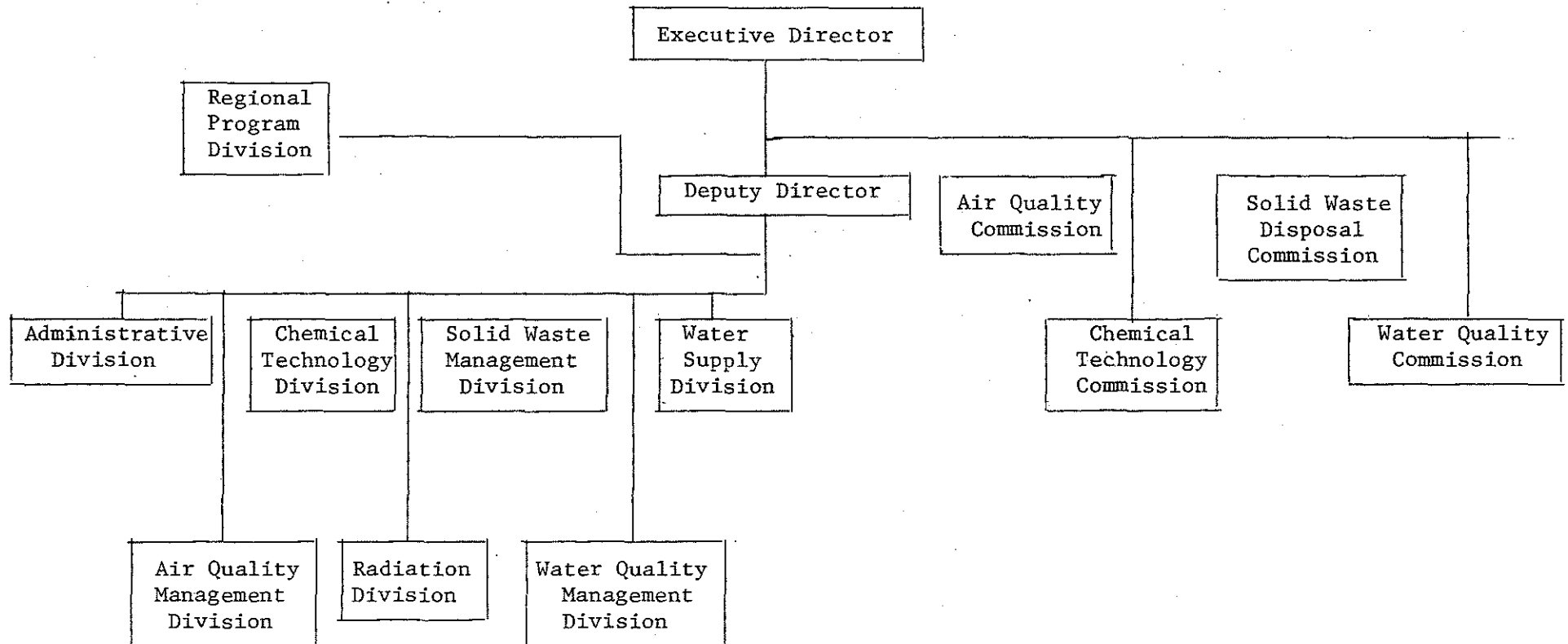


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The names of the person and agencies at all levels both public and private are too numerous to mention but thanks are extended to all of them.

I. INTRODUCTION

Devising a plan of this nature is a complicated process. Even more complicated, however, is the problem of devising a functional plan which is both environmentally sound and which serves to protect the local populace. Many plans which have been written are simply an inventory of the problem with a set of elaborate descriptions regarding what the ideal system should resemble. The plan developed by the Department of Environmental Quality is an attempt to devise a method of reaching specific objectives within a limited time frame as established in State Law. As such, this plan had to be put into effect to initiate actions which would lead to specific results. Because of temporal restrictions, such initiation was necessary prior to formal plan presentation since any delay might have resulted in an inferior product.

It is clear that in order to meet the objective of serving the people of Iowa and protecting the environment in which they live, an understanding of both the people and the environment must be established. A study of Iowa's people and environment quickly reveals that Iowa is an unusual State with unique problems and assets. These problems and assets are discussed in detail in the plan.

The statistical material, tables, and figures presented in the plan were extracted from the "1972 Statistical Profile of Iowa" published by the Iowa Development Commission.

II. SUMMARY

The solid waste management plan presented here is a compilation of the needs of the State as found at the start of the effort, the legislative initiative that launched a state-wide program, documentation of the efforts and accomplishments to-date and a presentation of where the future efforts will be directed. It is emphasized in several sections that the preparation and writing of a "plan" was delayed because of the need to initiate effective programs to carry out the legislative initiative.

Built into the document is the background necessary to understand the political and legal framework in which the plan must be implemented. Where weaknesses are found in the implementing system, additional authority, both state and local, are recommended for consideration. Local action is the key to the success of the plan and emphasis has been given to local agency planning to meet the solid waste management objective.

Specific recommendations of actions needed are found mostly in the section entitled "PROGRAM PLAN" which sets forth the resource objectives of the solid waste management plan. Accomplishments toward the goal of improved solid waste management will be made over a period of years with new objectives being continually brought to the forefront as more immediate objectives are reached.

The solid waste management plan and the periodic updates to it will serve as a basic reference document and roadmap for all State and local agencies with solid waste management.

III. BRIEF DESCRIPTION OF IOWA

A. HISTORY

Before Iowa became a state, Indians lived throughout the area, and ancient Indian village sites and burial grounds remain today, to tell of Iowa's early history. In 1673, the first white men came to Iowa. They were Louis Joliet and Father Jacques Marquette, famous explorers of the Louisiana Territory. The territory, which included the present State of Iowa, was purchased by the United States from France in 1803. Iowa became a free territory in 1820, under the terms of the Missouri Compromise and subsequently in 1838, the Territory of Iowa was established. The population at that time was 22,859. Robert Lucas was the first Governor. On December 21, 1846, when President Polk signed the act of Congress making Iowa a state, the population had grown to 102,388. The capitol of Iowa was moved in 1857 from Iowa City to Des Moines, where it has remained as the population of Iowa has continued to grow. In 1973, the population of Iowa is 2,825,041.

B. GEOGRAPHY

The 56,290 square miles of Iowa are located between the Upper Mississippi and the Missouri Rivers. The extreme north-south length of Iowa is 205 miles and the extreme east-west length is 310 miles. Elevation above sea level varies from 1600 feet in the northwest to 500 feet in the southeast. The northwest has most of the state's natural lakes. North Central Iowa has fertile prairie which includes 25 percent of the grade-A soil in the United States. Iowa's unique topography is shown in a map in Figure 1.

C. CLIMATE

Iowa's climate is classified as humid continental. Although the annual average temperature is 49 degrees, temperatures vary through a wide range throughout the year. Much of the annual average of 32 inches of rainfall comes during the growing season. Winter snowfall averages 30 inches, while relative humidity averages 72 percent. The frost depth is around 40 inches and the ground remains frozen 146 days a year on the average.

MAJOR TOPOGRAPHIC AREAS OF IOWA

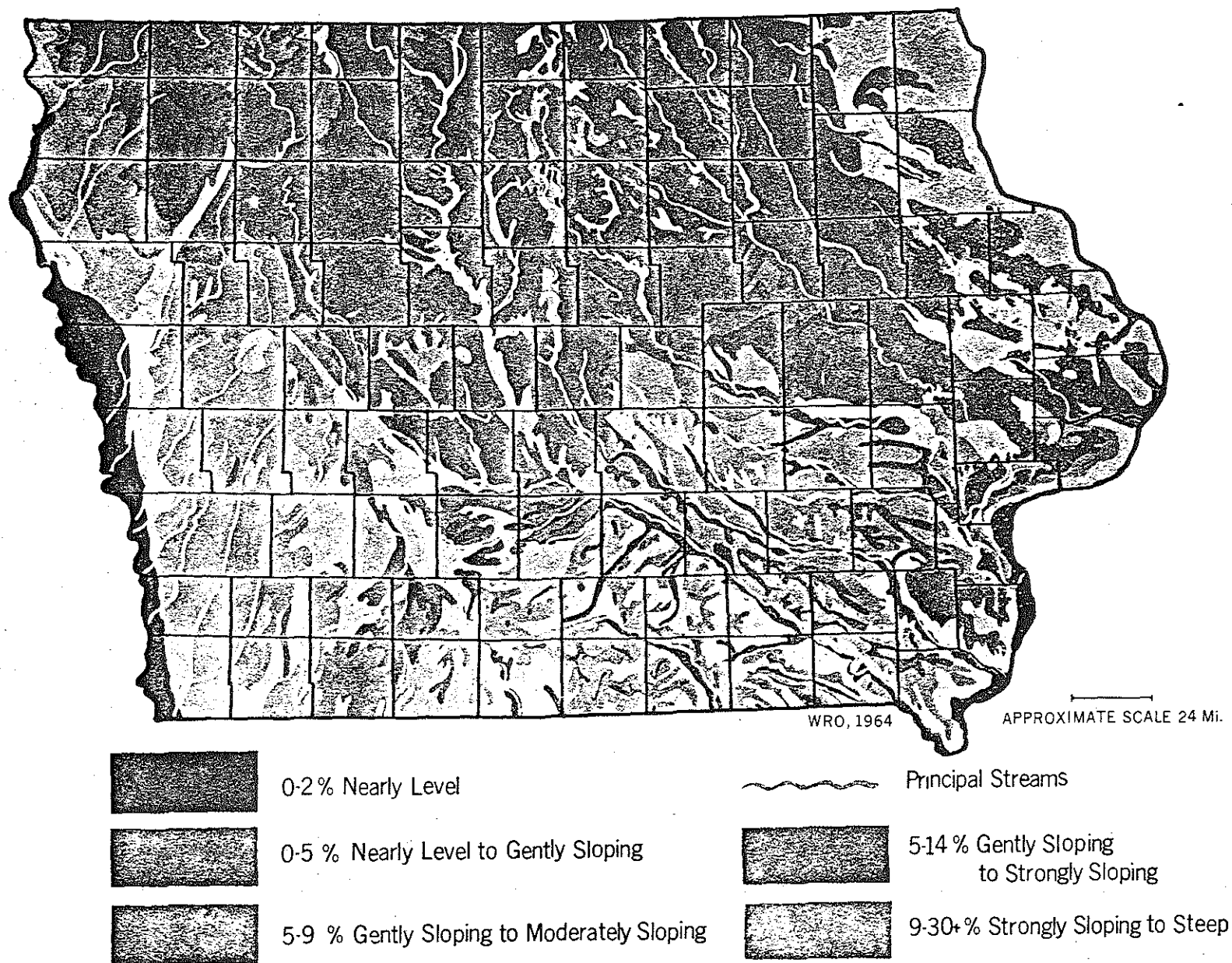


FIGURE 1

This information was supplied by the State Climatologist who pointed out that frost data has only been taken regularly at Ames, Iowa; however, Ames being centrally located, it should be representative.

D. POPULATION

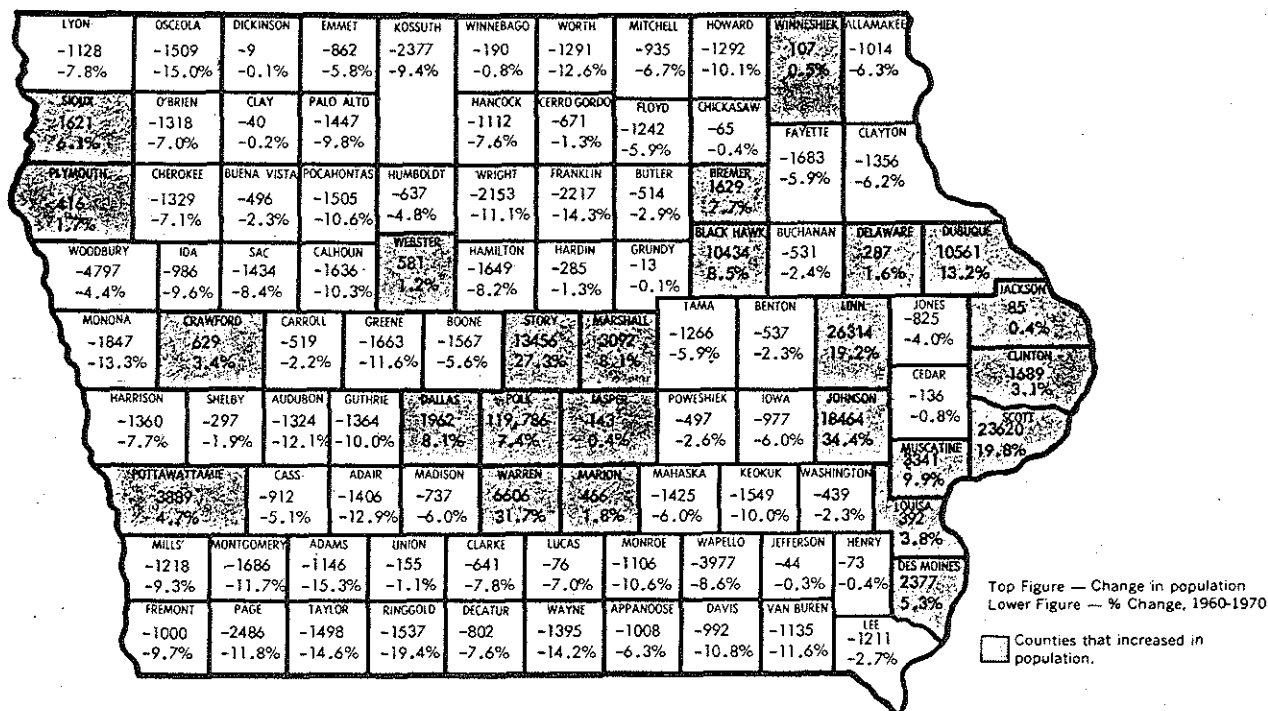
Iowa's population in 1970 was 2,824,376 representing a 2.4 percent increase over its population in 1960. The population is projected to increase by an additional 2.9 percent between 1970 and 1980, and 3.5 percent between 1980 and 1990. At these rates of increase, the projected population of Iowa to the year 1980, is 2,908,000 and 3,009,000 for 1990. The population is 57.2 percent urban and 42.8 percent rural with an average density of 50.5 per persons per square mile. A map showing population changes by county from 1960 to 1970 is shown in Figure 2.

E. DISTRIBUTION

Iowa has seven Standard Metropolitan Statistical Areas (SMSA) with concentrated populations of at least 50,000. These are Cedar Rapids (Linn County); Davenport-Rock Island-Moline, (Scott County, Iowa; and Henry and Rock Island County, Illinois); Des Moines (Polk County); Omaha-Council Bluffs, (Douglas and Sarpy County, Nebraska; Pottawattamie County, Iowa); Sioux City, (Woodbury County, Iowa; and Dakota County, Nebraska); Waterloo (Black Hawk County); and Dubuque (Dubuque County). (See Figure 3, SMSA's).

The most significant characteristic of Iowa's population is the relatively even distribution. Outside of Iowa's seven SMSA's this is especially true. Most counties have at least one major city with a population between 5,000 and 15,000 people located at its center and have approximately an equal number of persons uniformly distributed on farms or in small towns throughout the rest of the land area. Iowa, as a State, is maintaining a slow growth rate; however, its counties and cities are experiencing a considerable population shift as a result of improved farming practices and mechanization. Thus, many people who would have worked in primary industry and agriculture, are being displaced by machinery and are moving to the cities and towns to seek employment. Consequently, Iowa is becoming increasingly urban.

population change — 1960-1970



Source: U.S. Department of Commerce, Bureau of the Census,
"Number of Inhabitants," June, 1971.

population and land area of counties, 1970 & 1960

FIGURE 2

FIGURE 3

STANDARD METROPOLITAN STATISTICAL AREAS

A standard metropolitan statistical area is a county or group of contiguous counties (except in New England) which contains at least one central city of 50,000 inhabitants or more, or "twin cities" with a combined population of at least 50,000. Other contiguous counties are included in an SMSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. The SMSA's for Iowa as established by the Bureau of the Budget as of December 31, 1963 are as follows:

Cedar Rapids (Linn County)

Davenport-Rock Island-Moline, Iowa-Illinois

(Scott County, Iowa, Henry County, Illinois, Rock Island County, Illinois)

Des Moines (Polk County)

Omaha, Nebraska-Iowa

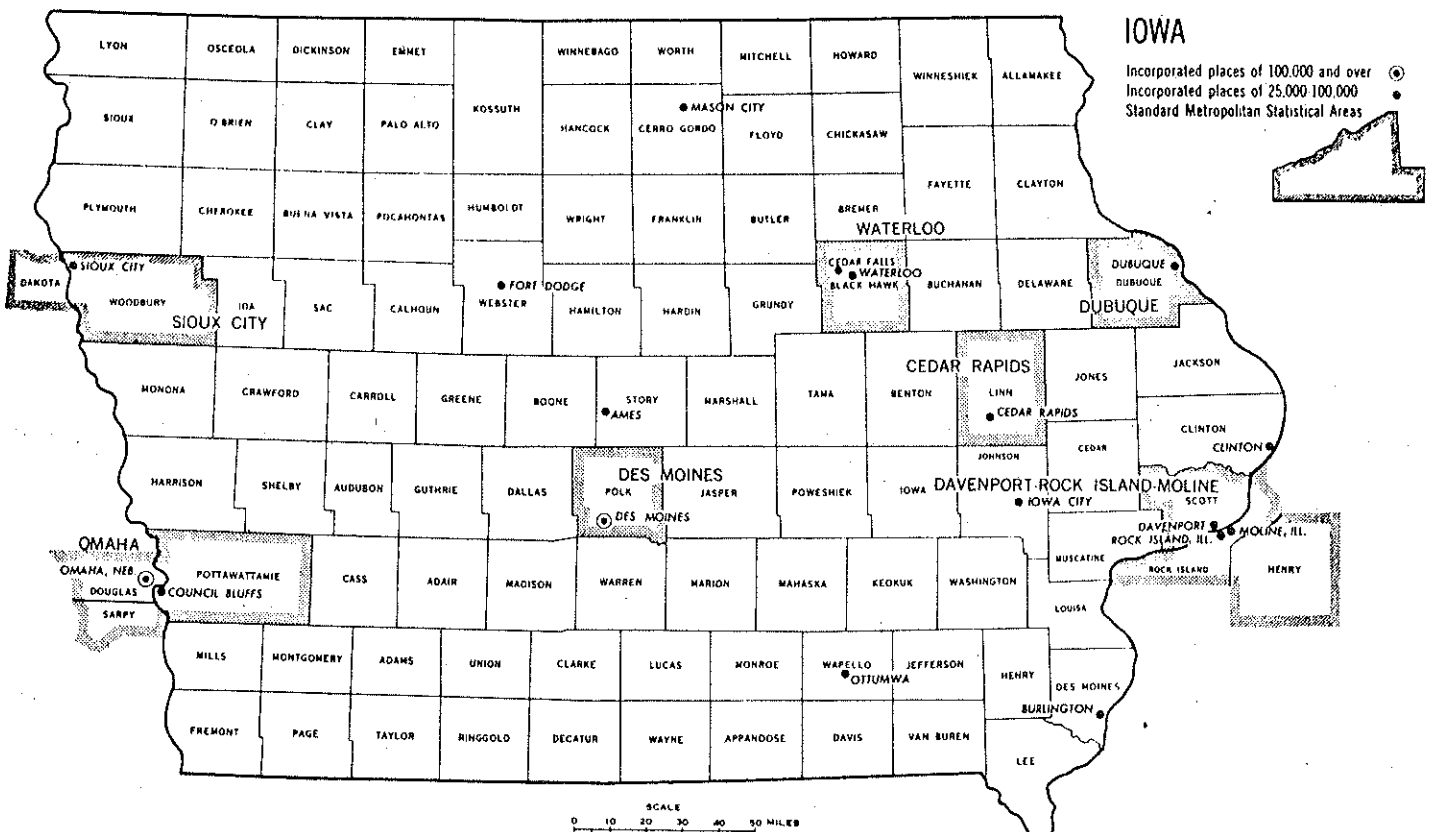
(Douglas County, Nebraska, Sarpy County, Nebraska, Pottawattamie County, Iowa)

Sioux City, Iowa-Nebraska

(Woodbury County, Iowa, Dakota County, Nebraska)

Waterloo (Black Hawk County)

The Midwest: A regional area encompassing Iowa, Minnesota, South Dakota, Nebraska, Kansas, Missouri, Illinois and Wisconsin.



However, most of Iowa is characteristically rural. Although 57.2 percent of the State's population lived in urban areas in 1970, only 24 of 99 counties had 50 percent or more of the residents living in urbanized areas and incorporated places of 2,500 or more. Seventeen counties out of 99 counties were classified as 100 percent rural, having no incorporated places of 2,500 or more in 1970. Fifty-eight counties had between 50 and 100 percent of the population living in rural areas.

F. EDUCATION

Iowa has led the nation for many years in functional literacy rating. The literacy of the population 14 years or older was higher in Iowa than in any of the neighboring states in 1900, when 97.3 percent were literate. By 1930, the literacy had climbed to 99.1 percent, and by 1970 it was 99.7 percent, remaining higher than in any of the neighboring states.

Iowa's high literacy rating is due to the State's excellent school systems. There are 455 public school districts, 389 parochial and private schools, 30 private colleges and universities, 15 area vocation schools and area community colleges and three state institutions of higher learning. In 1960, 46.3 percent of the persons 25 years old and over had completed high school, and 6.4 percent had completed four or more years of college. Premature termination of schooling is not common in Iowa; in 1969-1970, the holding power for twelfth grade enrollment as percent of ninth grade enrollment was 93.0 percent. As a result of Iowa's high education level, local plans can be developed, implemented and operated by the local population with a minimum of assistance from a state agency, or other organizations. The DEQ's contacts with local government officials have revealed an unusually high degree of desire and ability among local officials. Public meetings held throughout the State have been well attended by knowledgeable and interested citizens who demonstrated their desire to enhance and improve the environment of their State.

The net result has been the development of local solid waste systems with relatively little state agency assistance.

G. AGRICULTURE

Over 33 million of the nearly 36 million acres of land in Iowa were used for farming in 1969. The major farm products include corn, oats, soybeans, wheat, popcorn, butter, eggs, cattle and calves, hogs, sheep and lambs, and poultry. The State produces one-tenth of the nation's food supply.

In 1969, there were 526,772 people living on the 136,604 farms in Iowa. The average size of the farms was 247 acres. Although the number of farms as well as the farm population had been decreasing over the years, the average size of farms has been increasing. Iowa remains an agricultural state, with one-fourth of all the top-grade farmland in the United States. As a result of this agrarian nature, some counties are almost entirely farmland with no urbanized areas. Agricultural wastes including wastes from pesticides and herbicides usage will continue to be of concern in the State.

The State law provides that each resident can dispose of his own waste on his own property provided that this does not constitute a nuisance or health hazards. As a result, most of the farm population will probably handle its own waste with the exception of cans, bottles, old wire and other hard to handle materials. Therefore, the magnitude of the solid waste problem is spared the additional burden of providing a disposal facility for crop wastes.

H. MANUFACTURING

Iowa has shown increasing industrial development in recent years. A total of 516 plants operated by 127 of the top 500 industrial corporations (as listed by Fortune Magazine) have operations in Iowa. Most of Iowa's industry is located in its seven SMSA's. However, recent trends indicate that industry is also dispersing into rural communities.

I. MINERALS

Iowa has coal deposits which, if used at the present rate, will provide fuel for 10,000 years. However, the fuel is all high in sulfur content, and therefore, of low quality. As such, it has found little usage. Iowa is the third largest producer in the nation of crude gypsum, and is an important cement producer. Other minerals important in Iowa include clay, lime, stone, sand and gravel. Although most of Iowa's coal mines are of the strip mining variety, they

are neither numerous enough nor generally located in areas suitable for use as disposal facilities.

J. THE GOVERNMENT OF IOWA

The government of the State of Iowa is based upon a constitution adopted by the people and upon statute laws enacted from time to time by the general assembly. Figure 4 shows the structure of the state government.

Iowa has always used the separation of powers doctrine, dividing the governmental authority into legislative, executive and judicial components. Iowa has had two state constitutions, the first approved in 1846, the second in 1857.

1. The Governor

The executive power of the State is vested in the Governor, whose term of office is two years. The governor appoints all principle officers of the State not elected by the people, and certain officers connected with the State government, with the consent of the senate.

The chief executive is also responsible for taking final action on all laws enacted by the general assembly. He may approve, by signing, a bill passed by both houses or disapprove, by veto, or he may allow a bill to become law without his signature. The governor may call an extra session of the assembly when he feels the necessity of such actions.

The specific duties include being commander-in-chief of the military forces of state, chairman of the executive council, issuing notary public commissions, issuing land patents, and granting or denying extradition whenever there is a request for a fugitive from justice.

In summary, the governor is the chief administrator of the State and despite limited constitutional and statutory powers in many areas, is held responsible by the citizenry for the effective and efficient administration of the various departments and agencies.

DIAGRAM OF STATE GOVERNMENT

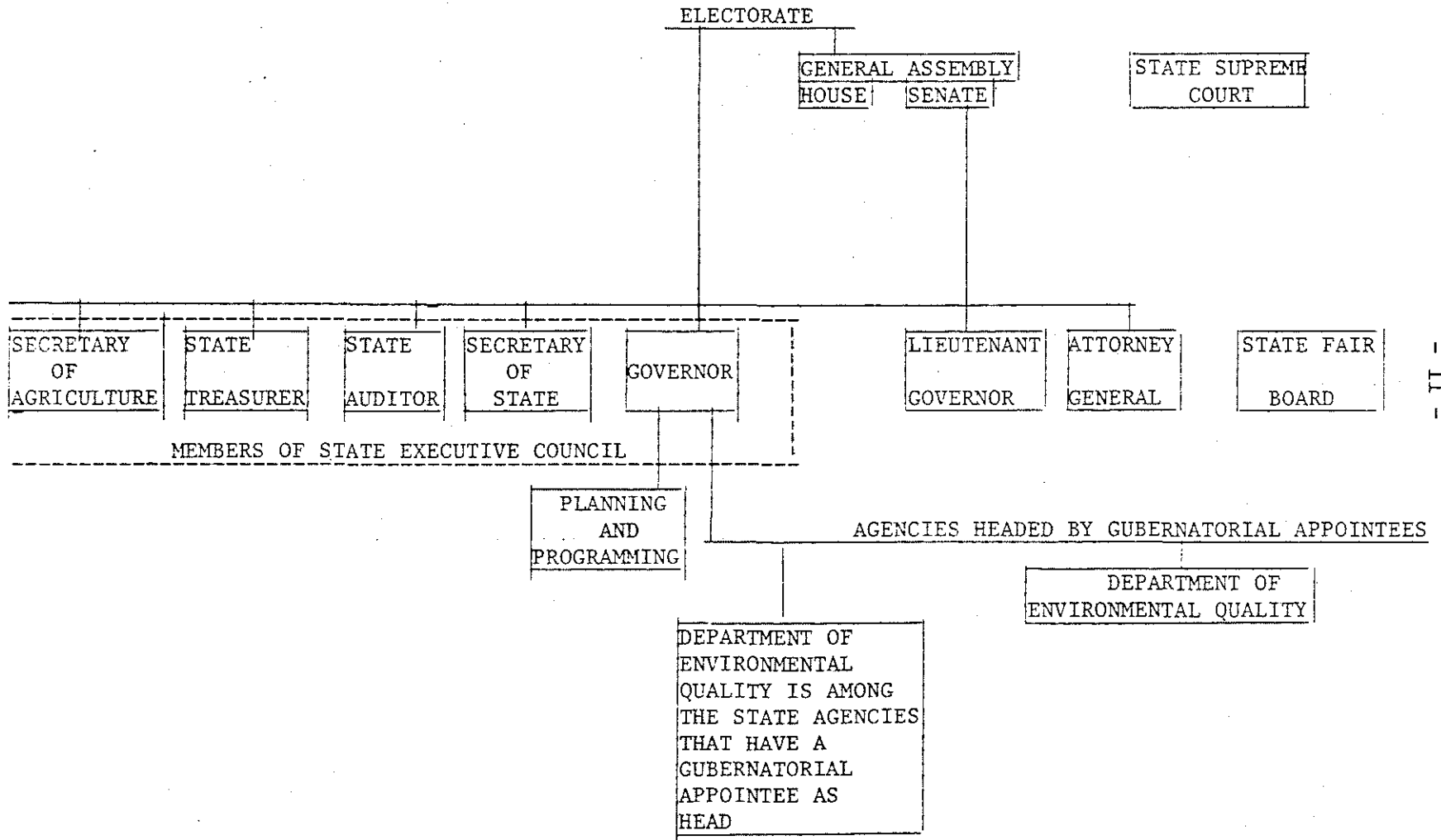


FIGURE 4

2. The Lieutenant Governor

The lieutenant governor is elected for a term of two years and in case of health, impeachment, resignation, removal from office, or other disability of the governor, the powers and duties of that office devolve upon the lieutenant governor, as acting governor.

The lieutenant governor is president of the senate, but can vote only when the senate is equally divided. His duties include appointing senate members of the Budget and Financial Control Committee, members of the Legislative Council, of the Departmental Rules Review Committee, of the Capitol Planning Commission, and members of the Interstate Cooperation Commission. The lieutenant governor also assigns bills and resolutions to regular standing committees which are not sponsored by standing committees and presides at joint conventions of the general assembly.

3. The Executive Council

The Executive Council was created by the adoption of the Code of 1860. Membership on the Council includes: The Governor, the Secretary of State, the Auditor of State, the Treasurer of State, the Secretary of Agriculture, and Secretary for the Council. The Executive Council has broad authority in the area of approval of most of the State activities related to expenditure of funds and personnel staffing. The Code of Iowa specifies duties, in addition.

4. Legislative Authority

The legislative authority of the State of Iowa is vested by the constitution in a general assembly which consists of a senate and house of representatives. The terms of both senators and representatives being on the first day of January following elections. Regular sessions are held biennially, commencing on the second Monday of January of the odd numbered years. Special sessions of the general assembly may be called by the proclamation of the governor.

5. Judicial Authority

The judicial authority for the State of Iowa is vested by the constitution in a supreme court, district court and inferior courts as the general assembly shall provide. The supreme court consists of

nine justices, who, until amendments of the constitution in 1962, were elected officers, with terms of six years. Vacancies now occurring are filled by appointment by the governor, from lists of nominees provided by the state judicial nominating commission. The term is at least eight years, on approval by referendum of the voters at judicial election. The justices name one of their number as chief justice, and he serves in that capacity until expiration of his term.

The constitution also provides for an attorney general who is elected at the regular biennial election for a term of two years. He represents the State in legal matters, gives advice to state officers, and has, in addition, certain administrative functions.

The State of Iowa is divided by law into eighteen judicial districts composed of from four to nine counties. Each district has from two to eight judges. Judges were elective officers until amendment of the constitution in 1962 made them appointive by the governor from lists of nominees provided by district judicial nominating commissions. Retention of office is subject to subsequent approval at a judicial election.

There are now seventy-five district judges in the State. One of the district judges presides over the district court sessions in each county. A county attorney and a clerk of the court are elected by the voters in each county.

Within the judicial framework there are also inferior courts, and municipal courts at the township and city levels of government, respectively.

6. County Government

The State of Iowa is divided into ninety-nine (99) counties, the boundaries of which may not be changed unless the change is approved by the voters of each county concerned. A board of supervisors consisting of three, five or seven members is the chief administrative agency in the county. They appoint a county engineer, county home steward, medical examiner, county welfare director and other administrative officials. In addition, an auditor, who is the clerk

of the board of supervisors, a sheriff, county attorney, recorder, treasurer, and clerk of the district court are elected by the voters, the terms being four years except for the county attorney, who is elected for two years. The supervisors are also authorized to create the office of public defender to represent accused persons unable to pay for their own attorneys.

The Iowa county is a quasi-political cooperation which collects municipal, school, county and state taxes, enforce state laws, has charge of poor relief and certain other welfare activities, and shares with the state highway commission the management of the roads and bridges in the county.

7. City Government

The laws of Iowa, presently, authorize the incorporation of cities and towns. These municipalities derive their authority from the general assembly and have only the powers specifically granted to them. Four cities and towns are governed by special charters (Davenport, Muscatine, Wapello, and Camanche) granted before the adoption of the present constitution which forbids such acts of incorporation. Four cities have the commission form of government (Cedar Rapids, Burlington, Fort Dodge, and Ottumwa); thirteen have adopted the city manager plan by ordinance (Clarinda, Iowa Falls, Manchester, Maquoketa, Shenandoah, Villisca, West Liberty, Ames, Grinnell, Guttenberg, New Albion, West Des Moines, and Marion); six have adopted the city manager plan by popular election (Des Moines, Council Bluffs, Dubuque, Webster City, Sioux City, and Iowa City). Members of the commission are elected by the voters. The city manager in cities adopting that plan by a popular vote is appointed by the council.

All other municipalities are under the general law. Municipalities are classified according to population into cities having 2,000 or more population and towns having less than 2,000 population. In approximately 920 municipalities, the government is by the mayor council system, in which the mayor and members of the council are elected by the voters for two or four year terms. The council is the policy-making body in municipal government and it is also the chief administrative agency in the mayor-council cities.

Effective July 1, 1974, the Home Rule for Cities and Towns Act, as passed by the 64th General Assembly, provides for establishing the City Code of Iowa. The Code will provide uniform powers and duties for the cities. Certain provisions are in effect now if a city council adopts them by resolution. On July 1, 1974, the entire Act takes effect for all cities.

K. GOVERNMENT SPENDING

State and local expenditures per capita are five percent greater in the midwest than in the nation as a whole. More is spent in Iowa on education and highways than the national average, and considerably less is spent for other government services. Fire and police costs in Iowa take a significantly lower portion of the state-local budget, due to the fact that the region has the lowest crime rate in the nation. State and local debt per capita is considerably below the national average. Both lower absolute amount of debt and lower risk costs in Iowa produce less reliance upon debt financing and less interest cost for local governments in Iowa.

Due to local financing experience, the Department has found little opposition to local financing of solid waste systems. The Department intends to avoid costly programs of State and/or Federal financing for the systems to serve the local citizens.

L. TRANSPORTATION

Iowa ranks ninth in the nation in total mileage of all road systems, with 112,342 miles of road in 1970. The State ranks sixth in the total amount of surfaced rural and municipal roads. Iowa's central location in the nation means rapid and economical distribution of goods to regional, national, and international markets.

Iowa ranks fourth nationally in miles of Class I railroad track. Nearly any community in the State has or may obtain access to adequate rail service. Iowa ranked fourth in the nation in the number of lighted airports in 1970, with 120 municipal and 119 private airports. Iowa is also an ideal location for large scale barge transportation, being bordered by two navigable rivers.

M. RECREATION

Iowa has 97 State-owned areas encompassing 520,000 acres. There are 76 State recreation areas and 15 State preserves. Forty-two parks have lakes. There are six State forest areas covering 21,000 acres, over 1600 miles of river, 239 State fishing access sites, 43,235 acres of lakes, three Federal reservoirs totaling over 24,800 acres, 240 public hunting areas covering 200,000 acres, and 30 waterfowl refuges encompassing 21,000 acres.

In 1969, the number of persons visiting the State was 14 million. Total receipts from travel related services and transportation industries amounted to \$1.11 billion.

A part of the total solid waste management system will provide for proper handling of the fluctuating quantities of waste generated at recreational areas.

IV. DEFINITION OF PROBLEMS

A. GENERAL

In the normal approach to planning, an inventory of problems is first undertaken. Then a methodology for overcoming these problems is devised, and the plan is implemented. The planning in Iowa could not proceed in that fashion because of the time constraints placed upon the Department by Iowa Legislation. Thus, planning and implementation had to proceed simultaneously. In the listing of problems which follows, many have already been overcome, but others have not. However, if planning becomes a truly dynamic and continuing function as is intended, then new problems will continually arise and be overcome as the system approaches its goal.

B. PLANNING

There is a lack of comprehensive planning in both urban and rural communities for the management of solid wastes. Initially, there were no rural solid waste plans, and only a few urban areas operating a planned system. There was little cooperation between communities or counties for solid waste management.

Since 1968, one of the State goals has been to institute regional planning as a method of overcoming local planning problems. The Governor's Office of Planning and Programming through its Division of Local Affairs has actively sought the formation of regional planning organizations by offering seed money through the U.S. Department of Housing and Urban Development grants. However, at the inception of the planning phase of Iowa's solid waste management program, these regional planning programs were few in number, and only a few of these were actually multi-county in their approach.

C. TRAINING

A problem facing the Department in initiating improvements in solid waste management was the lack of trained personnel at all levels. The Department itself had to staff up with personnel capable of guiding the development of a state-wide plan. A part of this need was met through short-term technical courses offered by the U. S. Environmental Protection Agency. Professional level personnel employed by the local agencies and the consulting firms were

for the most part unexperienced in proper solid waste management and a problem existed in upgrading skills through EPA courses and person to person technical assistance.

The last area of need was one that was not felt as immediately. The lack of trained operational level personnel was an area that lagged since only when proper facilities were designed and ready for operation did the need become extremely critical. The Department recognizes this need and proposes to coordinate improvements.

D. Organization and Management

No reporting system exists for solid waste in the State. At the time of the initiation of a formal State solid waste program, there were no operations which even approached a type which could be considered acceptable. In almost all cases, disposal consisted of open dumps where open burning was practiced. Solid waste collection in the large urban areas was an organized system which evolved out of necessity to reduce high collection costs; however, in rural areas and smaller communities, collection was an individual matter. To further complicate the matter, solid waste management programs were not monitored adequately. Local legislation is conspicuously absent for the control of on-site storage and collection of household, institutional, commercial, industrial, and agricultural wastes.

The first problem thus became how to organize 964 communities and 99 counties into a network of agencies capable of planning solid waste management systems.

The second problem, then was to initiate solid waste management systems which would function adequately on a local level with a comprehensive program to deal with storage, collection, transportation, processing, recycling, disposal, and the management of solid wastes.

E. REGULATORY

On the State level the passage of solid waste legislation in 1970 and the promulgation of rules pursuant thereto provided the impetus for change. However, local legal authority trails that of the State. At all levels of local government, the ordinances to control storage, collection and disposal was inadequate or totally absent. The local planning phase of the State

requirements have pointed this out. The efforts by these agencies and the provision of model codes, ordinances and contract documents will in time, alleviate the problems.

F. FINANCING

The addition of solid waste management requirements on the local governmental agencies did pose rather severe financial problems. First, was the cost of the planning studies, whether in-house or by consultants which the agencies faced. Joint action by cities and counties alleviated the problem considerably since funds were not generally available from the State or Federal governments.

The second problem was to provide the necessary capital and operating monies required to implement the improved systems. Again, State and Federal funds were not available. Counties had available limited tax monies for design and operation of facilities but it appeared to be too limited to meet the needs. However, to-date, the local governments when jointly handling their solid waste problems have been able to provide for disposal. In almost every case, financing is holding back progress in providing collection for the rural county areas.

G. STORAGE

Solid waste storage in Iowa has involved no state-wide control and little local control. As a result the waste is sorted in every imaginable type of container and placed in any location. Modern bulk containers are being used commonly by industry and business which contract to have their wastes hauled by a local contractor. This has been forced upon them through economic constraints. Some of the cities which have municipal collection have standardized residential storage for their own convenience. However, many of the smaller cities have no standardized residential storage and the facilities within a single city may range from a pile on the ground to a standard garbage can.

The practice of open burning in the backyards is still in existence in a large proportion of the State. The major cities have outlawed the practice but in the more rural areas, no control is evidenced.

H. COLLECTION

Solid waste collection in Iowa ranges from modern municipal or franchised systems within the larger systems through private collectors contracted individually by the public to no collection at all. Most of the larger metropolitan areas and a few of the smaller cities have had a municipally controlled collection service, either municipally owned or contracted, through some agency either public or private. In most of these systems, the equipment is modern and well maintained and the service professionally managed. The larger of these systems have been forced by economics toward efficient operations.

Residents of the smaller cities and the rural areas in particular, have no organized collection service available. Collectors have developed businesses in these areas on a random basis. For example, many communities have several collectors working the same streets because the householder contracts with the collector on an individual basis. In still other areas, there is no formal collection at all. The homeowner is forced to handle his own waste problem as best he can.

Since the collection services in most cities and counties are loosely organized at best, little control is exerted over the methods of refuse collection resulting in a rather expensive and loosely run system.

I. TRANSPORTATION

Iowa, because of agrarian nature, dispersed population, and the need for farm to market transportation, has one of the best secondary road systems in the nation. All of Iowa's roads from the interstate to the county roads have established load limits including the bridges. The State Highway Commission and the county engineers are responsible for the maintenance of the roads and the establishment of load limits.

The road system can well serve as the necessary network for solid waste transportation. Caution must however be exercised to see that the roads required will adequately handle collection vehicles throughout the entire year. Bridges must be especially analyzed. The Highway Commission and the county engineers should be consulted concerning any road system being proposed for solid waste transport.

J. PROCESSING

In the past, transfer stations, incinerators, grinders and other types of solid waste processing facilities have not been used in the State. Presently, the Department is reviewing an application for a permit for a transfer station. Other facilities of this type will be opening, especially when multi-county operations begin to develop. This Department and operating solid waste agencies throughout the State have practically no experience with any type of processing facility and therefore, the further development of these facilities may prove challenging.

K. RECYCLING

The recycling efforts in Iowa have largely been for publicity purposes rather than as valid attempts at a solution to the solid waste problem. This is because:

1. There are few markets in Iowa for recycled material and those markets which do open are sporadic in their operation.
2. The transportation costs of hauling secondary materials is usually prohibitive.
3. The technology for recycling is generally not well-developed and the equipment which does exist, is extremely expensive. Thus, volunteer labor is necessary for a recycling system to function successfully. This volunteer labor has in the past, proved to be undependable for long-term operation.
4. The cost of complete recycling facilities is more expensive in both capital cost and operation cost than are landfills in Iowa.
5. The sanitary landfill is a proven method of solid waste management, whereas many of the recycling methods are prototypes. Therefore, local elected officials are reluctant to put taxpayers' money into unproven methods.

However, there is a genuine interest in recycling at the grass-roots level, which has resulted in some initial attempts at recycling.

L. DISPOSAL

There are numerous problems relating to disposal sites. Some of these problems will be described here. Most of Iowa's solid waste disposal sites were not planned, in any sense. Many evolved from promiscuous sites into formal dumps by continued use. As a result, these sites are generally located in such places as river banks, in ravines, and in drainage ditches. Most of the sites are not supervised or controlled in anyway. In those which are controlled, this is usually only to the extent of directing where the waste should be placed or moving the waste occasionally with some kind of equipment for the purpose of allowing more waste to be deposited.

The disposal sites in almost every case used open burning to reduce the volume of refuse within the site. This burning was often subject to no controls whatsoever; in fact, users of a site often would ignite the waste and leave.

Hazardous materials and liquid chemical wastes were deposited with no concern for environmental effects. The wastes which were dumped were often flammable or toxic and in great quantities. This problem is becoming more and more apparent as certified landfill sites are opened, and permission to deposit hazardous substances is refused forcing the owner to contact the Department to determine an acceptable disposal method.

Almost all of the old disposal sites allowed scavenging which often became a major pastime for a number of people. However, scavenging cannot lend itself to modern sanitary landfill practices for two reasons. First, is the safety problem of people salvaging around moving equipment or trucks. Every year, several people are killed or injured in dumps for this very reason. Second, is the unsightly mess of scavenged material scattered about the landfill. This contributes to the negligence of the user, unsightliness and provides harborage and food to vectors.

Acquisition of land for solid waste disposal for the future is a problem which all agencies face. Even when some type processing or volume reduction is practiced, the need exists for adequate sanitary landfill space.

Analysis by the Department based on 19 facilities operating under State permit and serving 32.1% of the population, indicate that nearly 600 acres of land will be required each year for sanitary landfills. In many cases, the

land will be returned to a more productive state than was originally possible. This does however show that for even a 10 year projected need that 6,000 acres must be dedicated for solid waste disposal with more added as completed portions are returned to productive use.

M. SPECIAL WASTES

Some of the special wastes that create management problems are as follows:

1. Used Tires

One of the most serious problems resulting from the increasing number of motor vehicles is the growing accumulation of used tires for which no practical method of disposal has been implemented. Disposal of large numbers of tires at landfills has not been satisfactory, since the tires can rise to the surface after burial. In addition, tires take up a large amount of landfill space. This problem is compounded by the presence of major tire manufacturing plants located in central Iowa which put their rejects into the solid waste stream.

2. Junk Cars

Abandoned car hulks should be excluded from sanitary landfills because of their great bulk. Estimates issued from the Governor's Office of Planning and Programming (which is coordinating junk car drives throughout the State) indicate that between 600,000 and 800,000 of these cars are scattered over Iowa's landscape and as many as 300,000 are added each year.

3. Chemical Wastes

The increase in the number of industrial plants and the usage of agricultural chemicals in Iowa is resulting in more and more chemical wastes which must be disposed of without creating health and safety hazards or ground or surface water pollution problems. Some chemical wastes are harmless and probably can be disposed of in landfills without danger. On the other hand, there are chemical wastes which are quite toxic in nature, and must be excluded from landfills, whereas they were permitted in unregulated dumps. The magnitude of this problem is just now surfacing.

4. Demolition Materials

Demolition materials disposal can result in a tremendous burden for landfill operations because of the tremendous volume involved. Therefore, many local officials are requesting that the State allow the disposal of

demolition waste in noncertified sites or that the State promulgate new rules tailored to certified disposal sites specifically designated for demolition materials.

V. PLANNING METHODOLOGY

A. BACKGROUND

In the past, the State of Iowa had no control over the disposal of solid wastes. This is primarily because of Iowa's rural nature and the attitudes of its residents that solid waste does not really constitute a problem. However, the increasing affluence of modern living and large population densities have placed enormous loads on solid waste disposal systems. The problem has previously been handled by numerous open burning municipal dumps, by promiscuous roadside dumps, and by sporadic attempts to utilize sanitary landfills. However, the volume of waste has converted what was once regarded as a public meeting ground - a giant garage sale where happy people gathered to rummage through one-another's discarded items - into a smoldering, rat infested nuisance, a nightmare of noxious smoke and odors, dotted with dangerous discards such as old refrigerators and farm machinery.

Public apathy has rapidly changed into a new awareness and citizens today are interested in eliminating solid waste problems as never before. This new wave of interest has manifested itself in the passage of new air pollution and solid waste laws.

The Legislature of Iowa, in its passage of the Solid Waste Bill, Chapter 406, Code of Iowa, 1971, (now referred to as Chapter 455B, Code of Iowa, 1973) (see Appendix I.) and the Rules developed (see Appendix II) put the implementation of that Bill into three distinct phases. The first phase represents planning, the second phase is implementation, and the third phase is operation. The Environmental Engineering Service of the Department of Health, the agency from which the Department of Environmental Quality was formed, was determined to develop and operate with a philosophy which would comply with the intent of the law.

However, an operating philosophy cannot be developed before the goals and objectives of the project are defined. Every worthwhile human effort is directed toward particular goals and objectives; successful solid waste management is no exception. The goals themselves are the ideas toward which both individuals and groups strive. A goal may be as simple as winning a game in individual competition or as complicated as the attainment of world peace. However, all goals are approached by attainment of many smaller accomplishments or objectives.

The Solid Waste Management Division has developed a goal toward which all philosophy, policy, and objectives would be directed. The goal is to protect the citizens of this State from such hazards to their health, safety, and welfare as may result from the lack of management of solid wastes by providing storage facilities, collection services, and sanitary disposal projects which are both economical and efficient in their operation. Initially, the emphasis is being placed upon the establishment of suitable disposal facilities.

Three major objectives for attaining this goal have foundation in the State's solid waste law and are defined in natural phases. The first major objective was to have all cities, counties or private agencies develop a solid waste management plan by January 1, 1973. The purpose of this objective was to insure that each solid waste management system developed, be based upon sound reasoning and judgment so that the end result will be both economical and efficient. If a system develops which is not economical and efficient, then it will probably fail even though it may be environmentally acceptable. The net result is that, in order for a plan to be effective, it must take into account all the factors of a solid waste management systems, i.e., storage, collection, transportation, processing, recycling, disposal, organization and management.

The second major objective is to rid the State of open dumps by July 1, 1975, by providing a network of environmentally acceptable sanitary disposal projects operated in accordance with planned solid waste management systems. This will require that each planned facility, whether for processing or disposal, obtain a permit prior to operation. The permit will certify that the facility is properly designed and will be operated in an environmentally safe manner.

The third major objective is to insure that the new facilities, when constructed, are operated in accordance with the best available solid waste practices. This will require that each of the facilities be subjected to continuous monitoring, that each operator, foreman, and manager be subjected to continuing education programs and that the management of each system be given that technical assistance which will allow implementation of the latest technology.

B. PHASE ONE: PLANNING PHASE

1. Objectives

The major objective of the planning phase as previously discussed, is to have a plan developed for the solid waste management systems which will dispose of all of Iowa's waste after July, 1975.

Minor objectives were laid out and undertaken so that the major objectives would be reached. Since the planning phase was nearing completion as of July 30, 1973, a discussion of the objectives, techniques, and current results of the planning effort follows.

2. Solid Waste Inventory

In planning, the usual initial step is to determine the magnitude of the problem by taking a comprehensive inventory. In many of the completed state solid waste management plans, extensive resources were applied in obtaining this information. However, in the cursory review which precedes any massive effort, it became readily apparent that few, if any, of the existing solid waste disposal facilities would meet the rigid conditions required by the permit program. Furthermore, as a rule, no management system was present. The considered judgment of the solid waste staff was that the old systems must be scrapped and entire new systems developed, thus rendering any inventory useless.

When system plans were developed, usable information about the local solid waste problem was needed, and therefore, the objective became to develop an inventory from the information gathered in the development of local solid waste management plans. This information, as of July 30, 1973, is contained in Appendix III.

3. Size of Systems

The solid waste staff has also encouraged the adoption of a solid waste organization with a large population base. The staff experience has been that a population base of less than 12,000 is economically marginal for the acceptable operation of a sanitary disposal project. There are many advantages of large scale solid waste management systems to local government, a few of which are enumerated here.

- a. Economy can be realized in planning, construction, and operation. Cooperation between local governments in the performance of their solid waste management responsibilities has been found economically

attractive by many studies and actual operations.

- b. More latitude is available for selection of environmentally and publicly acceptable disposal sites.
- c. Technology may be recommended for utilization which is not economically feasible for small cities and towns.
- d. Areas where solid waste services would probably not be provided without coordinated planning can be eliminated.
- e. A coordinated public relations program can be undertaken to educate the public and increase its awareness.

The Department also realizes that unless its solid waste staff is substantially increased, the monitoring of the sanitary disposal facilities of 964 communities and 99 counties will be entirely inadequate. The solid waste situation would therefore not be greatly altered despite great amounts of effort expended by both local and State government. The staff has tentatively decided that between 100 and 150 sanitary disposal facilities can best serve the State of Iowa both from a practical and economical standpoint. This is not to say that the staff is arbitrarily deciding those cities which can have sanitary disposal facilities and those which cannot. The fact is that any city, town, county, or private agency, can have its own sanitary disposal project for which the rules and regulations are met. Even now, certified landfills are being operated by both large and small communities, counties, and even private individuals. However, the solid waste believes that in order for an operation of this type to remain functional, it must be supported by a reasonably large financial base. Therefore, the staff has been extremely active in encouraging local governments to write under a 28E Agreement (see Appendix IV, Sample 28E agreement). This simply allows local governments to do jointly those things which they actually can do individually. The signatories may act as a single legal organization set up for a single function. Consequently, they are optimizing resources and services such that the most equitable arrangement can be achieved. Thus, an objective became to develop primarily multi-county and county-wide systems.

The adherence to this objective by the solid waste staff has paid big dividends in that most of Iowa is now operating under such an arrangement for solid waste (see Appendix V, Status of 28E Agreements).

4. Local Participation and Control

After a review of early failures, the solid waste staff decided that for the development of solid waste systems, local participation in the development and control of forthcoming solid waste management systems, was imperative. A staff objective was developed that each solid waste management system have local control, either by operating the system via a public agency, or by locally approved contracts with private industry. In the attainment of any worthwhile objective, some problems will develop which must be overcome. The problems which were encountered here were of two distinct types.

The first was that of inducing local officials to take an active part in this program. To accomplish this, the solid waste management division has adopted a policy of "selling" the solid waste program by using its small, but diversified staff to present local officials with accurate and pertinent information on solid waste as well as the best possible engineering judgments when necessary. The approach was to encourage local government to develop a plan tailored to their individual needs through information provided by this office. This approach was enhanced by the fact that local government, in practically all cases, was tired of the ineffectiveness of their current deplorable solid waste situation, but lacked the knowledge to eliminate it.

Second, local officials in most cases did not possess sufficient expertise to conduct a solid waste planning program nor to implement the resulting system. In order to educate local officials in the planning process and to aid them in developing a workable plan, the solid waste staff presented them with practical and positive methods. Most of the methods were documented and will be discussed later.

The solid waste staff of DEQ was able to capitalize on this new wave of public interest by providing local government the leadership and technical know-how to overcome their present situation. The results as of July 30, 1973, as shown on Table 1, are that DEQ has received plans from 91 of Iowa's 94 regional agencies which is significant, considering the

TABLE 1

STATUS OF LOCAL SOLID WASTE PLANS

July 30, 1973

<u>Number of Actions</u>	<u>Regional Organizations</u>	<u>Cities</u>	<u>Private</u>
Total	94	102	50 est.

Plans approved	39	6	0
Plans for which additional information has been requested.	30	4	0
Plans awaiting review	22	38	15
Plans not submitted	3	54	35 est.

Legal action not initiated	0	19	35 est.
Attorney General suit filed	2	8	0
Attorney General action pending.	1	27	0

minimum amount of pressure exerted through enforcement. (See the Planning Status, Appendix VI) Open dumps are still in use in some parts of the State, but they are being phased out, and all open dumps will be closed by July 1, 1975.

The staff, in their insistence that local governments develop their own solid waste plans, has provided another benefit to the people of Iowa in that related problems which are not compatible with local plans can then be studied by the staff of DEQ and other agencies. Some of these problems which will be discussed in detail in later sections of this plan, are junk cars, hazardous materials, demolition materials and radioactive wastes.

5. Planning Phase Literature

In the planning phase, it became apparent that documented information which could be presented to interested parties would be of considerable value. In the beginning, the State solid waste law was distributed along with various EPA brochures. However, as time passed, a need was discovered for specific topics of information to fulfill the unique needs of Iowa's local governments. Consequently, specific publications were developed as the needs dictated. Following is a discussion of the various documents developed. All of these documents are available from the Department.

a. Guidelines

The Iowa State Guidelines for the Development of Local Solid Waste Management Plans were developed by the Department of Health during January, 1972, and released in March, 1972. The essence of these guidelines is contained in a paper entitled Local Solid Waste Planning for the State of Iowa (Appendix VII) and the discussion that follows.

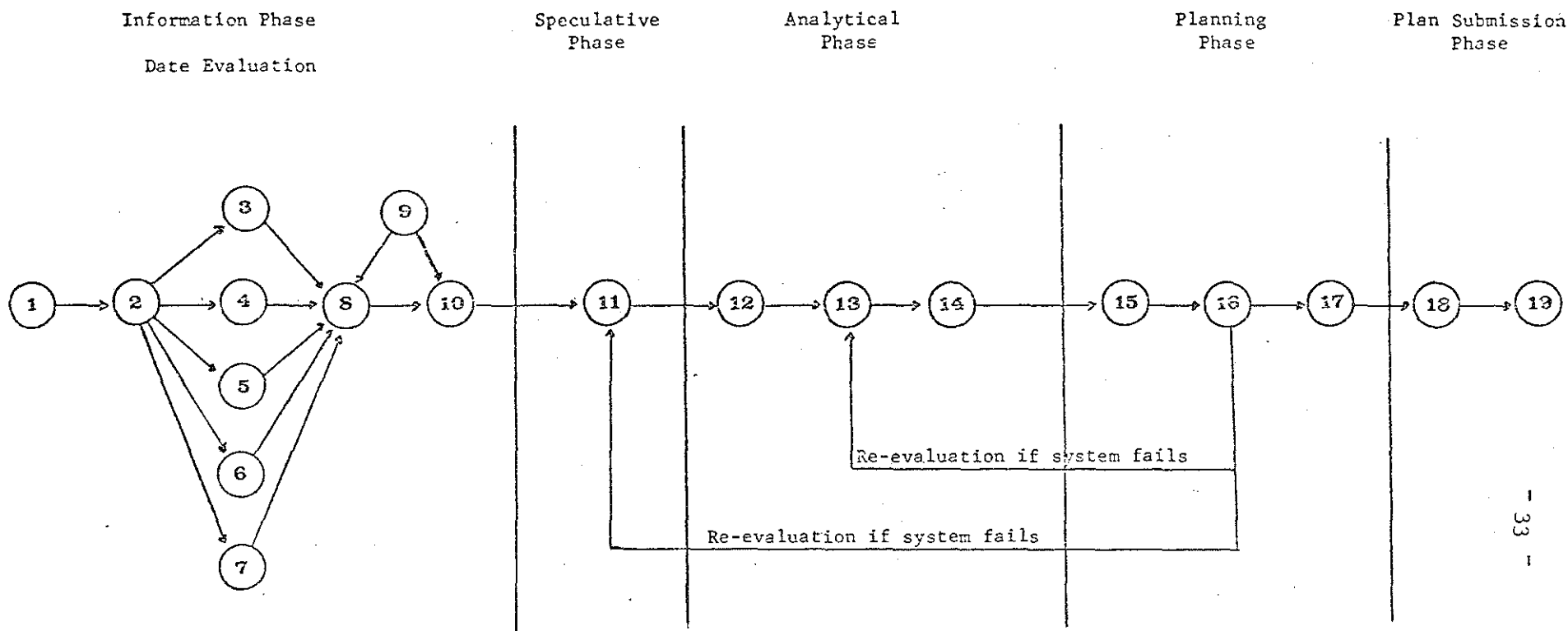
The purpose of these guidelines was to direct the thinking of concerned planning groups toward a common goal, and to provide them with the tools necessary for the generation of a comprehensive solid waste management system. In many cases, guidelines are merely a listing of requirements, and as such, provide the user with no further information. However, Iowa's guidelines were set up in such a manner that they can be used for the development of a complete plan. The purpose of the guidelines may be divided into two areas. First, is

the provision of the local planning groups with a method for planning which will result in the total involvement of their members. It is essential for the implementation of a plan that it be accepted by the public such that mass involvement in the planning process can aid in the adoption of the end product. The second area is provision of the local planning groups with the minimum requirements for a comprehensive solid waste plan, regardless of whether the planning is done locally or by consultants. Each community was given a set of specific standards by which the alternative planning proposals can be compared.

The guidelines presented to the communities were more or less standard, although the format of their presentation was not. The "Value Analysis" approach has been used by hardward industries for years as a method of remaining competitive in a field where product technology is standardized and where raw materials and labor costs continually rise. Solid waste management is in a similar position.

The sanitary landfill has become the most common method of waste disposal, and most efforts are directed toward the minimization of the cost of the collection and disposal aspects. The efficiency of solid waste disposal is usually affected by method changes rather than by technological innovations. Resource recovery efforts have resulted in systems of marginal value to the solid waste program in Iowa, and as a result, improving the method of operation became the most important method of cost reduction. The "Value Analysis" technique lends itself very effectively to method improvements and it has become a natural tool for systems planning. These guidelines proved to be immensely effective in the initiation of programs by providing a method of proceeding in the development of a plan. The plan formulation process itself is a method for instituting a formalized approach to program development. This specifically fulfills the needs of local agencies. The "Value Analysis" approach suggested in the guidelines provided such a planning process which was both timely and relevant.

The "Value Analysis" method consists of five phases (see Figure 5) which draw together and utilize any and all techniques necessary for achieving the desired goal. The first phase of the "Value Analysis"



- 1 Start
- 2 Environmental Inventory
- 3 System Deficiencies
- 4 Future Constraints
- 5 Future Needs
- 6 Present System Costs
- 7 Special Requirements
- 8 Problem Definition
- 9 Solid Waste Goal
- 10 Set Objectives

- 11 Generate Alternative Ideas for Solutions
- 12 Idea Evaluation
- 13 System Generation
- 14 Cost Comparison and Selection of Most Promising Systems

- 15 Detailed System Cost Study
- 16 System Evaluation
- 17 Recommendation and Project Scheduling
- 18 Prepare Plan Format
- 19 Submit Plan

PLANNING FLOW CHART - Figure 5

method is called the Information Phase and as its name suggests, it is informational in nature. Its purposes are to gather and tabulate data on the present system and its environment, to evaluate that data in order to determine the system's shortcomings and to set the study objectives.

The purpose of the second, or Speculative Phase, is to generate alternative approaches for accomplishing the objectives. The technique involved here is the "brainstorming" approach in order to generate creative thinking.

The third, or Analytical Phase, is used to examine all the system alternatives proposed in the speculative phase. At this point, all obviously unworkable approaches, as well as those which do not seem promising should be eliminated.

The fourth, or Planning stage, is where a formal program of investigation of each of the most promising alternative systems is carried out. In this phase, the decision is reached as to the system of solid waste management that is to be recommended.

The fifth and final phase is the Plan Submission; a final plan for implementation is formally prepared from the recommendations previously generated.

The "Value Analysis" approach described above provides a practical method of generating a comprehensive local solid waste management plan.

b. Key Steps

Planning is effective only if the schedules and deadlines are carefully predetermined. Experience has shown that a certain sequence of events is usually necessary if the local solid waste program is to be successful. This sequence of events was published in June, 1972, in a document called Key Steps in the Development of a Sanitary Disposal Project. (See Appendix VIII). The publication outlines the "Key Steps", describes briefly the activity performed, and explains the impact of the activity. The "Key Steps" are written in a short concise manner, eliminating all nonessential information so that it can be reviewed and digested quickly by the layman.

The "Key Steps" can serve as the outline by which a local planning group can organize and begin its operation, carry out its planning, and finally open its sanitary disposal facility. The activities are listed in a sequence which has proven to be very effective for the development of a complete solid waste program. These "Key Steps" have served to answer the common question--where do we go from here? Many local agencies are only going to put forth the minimum effort for compliance with the law, regardless of the possible advantages of a thorough analysis to the end product. Therefore, it became necessary to specify a set of minimum planning requirements so that an adequate analysis would be completed.

This method set forth in the publication emphasized public relations, organization of an association, and development of a plan as preliminary requirements to the establishment of a sanitary disposal project. The most important of these is the establishment of a functional solid waste organization in the sense that such an organization will accomplish what is intended, if guidance by the State is provided. In almost every case where an organization was formed from local leaders, an acceptable plan has resulted.

c. Plan Requirements

The Minimum Plan Requirements to Comply with Chapter 406.7, Code of Iowa 1971, (now Chapter 455B, Code of Iowa, 1973) (see Appendix IX). was mailed to every city, town and county on October 11, 1972. Additional copies were distributed upon request. This document served the purpose of stating exactly what was required so that both the local agency and the solid waste staff were using the same criteria for planning. The solid waste staff is evaluating all local plans by this criteria, which has been considered to be a minimum effort toward a comprehensive solid waste plan. The staff can be assured that local problems have undergone at least a cursory examination, and that the plan itself has been logically conceived.

d. Speeches

Many local agencies were interested in the Departmental philosophy and approaches to problems. The staff members gave many formal presentations at various universities, as well as hundreds of informal

speeches at local gatherings. In some cases, reprints of the statements have been requested and have proven useful. An example of one such formal presentation, which was discussed earlier, is Local Solid Waste Planning for the State of Iowa. (See Appendix VII). This particular paper was presented at Iowa State University in 1973.

e. Analytical Procedures

Local solid waste agencies, in the course of their planning, often request guidance toward the solution of specific problems. This guidance was given to those agencies by demonstrating methods for a specific solution. When a problem of this type recurred often, examples of published information would be gathered for general distribution. An approach to sanitary landfill site location entitled, A Preliminary Economic Analysis of the Southwestern Daviess County Sanitary Landfill Location is an example of this type of publication. Copies are available from the Department on request. In addition, many EPA publications on various topics were distributed.

f. Example Legal Documents

Local agencies in their planning process have developed needs for specific legal documents, and as a result, the Department of Environmental Quality has been requested to provide examples of these documents. The most popular of these requests is for a sample 28E Agreement (see Appendix IV) as most of Iowa's communities and counties are combining to some degree for the planning and operation of sanitary disposal facilities. This particular document is of great importance to local governments in that it demonstrates the proper format for this type of legal document. The 28E Agreement must contain the following information: Purpose, Organization, Delegation of Powers, Duration, Dispersion of Assets, Method of Membership Withdrawal, Arbitration Between Members, and Method of Financing. The sample 28E Agreement distributed to local governments provides sample wording for each of these sections.

With the initiation of systems, local governments are beginning to show interest in model ordinances. The new solid waste management systems are placing new demands on local governments. Never before

has local regulation and collection been so critical. Agencies are now entering into contracts with local collectors and landfill operators. Previously, in most small Iowa communities, this kind of service was negotiated on an individual basis by the householder and the operator. Thus, this agency is being asked to provide sample agreements. Since this demand is just surfacing, sample agreements tailored specifically for Iowa have not yet been developed, and as a result, the Division has used examples used by others which are adequate: An Ordinance Regulating Solid Waste Management (see Appendix X) prepared by the Division of Health of Missouri; Model Contract for Residential Solid Waste Collection (see Appendix XI) prepared by the Division of Health of Missouri; and a Sample Sanitary Landfill Contract (see Appendix XII).

As the demand for the model contracts increases, which it certainly will as more solid waste management systems approach implementation, more and better examples will be devised.

6. Enforcement

Regardless of the sales ability of the Department of Environmental Quality, no progress would have been made unless local governments could have been provided with some measure of incentive. This is because solid waste management was a problem unknown to most Iowa communities and of minor importance to the rest. The State suddenly demanded that these heavily burdened agencies undertake a new project which will heavily tax their resources and energies. With no money available for grants or aid, the only incentive which could be used was enforcement of the existing legislation.

Undesirable as it is as an incentive, enforcement is used as a coercive method for those communities which refuse to cooperate with the Department. The enforcement procedures schedule has not yet been fully implemented. However, if it were not for this threat of enforcement, the probability of the good cooperation which the solid waste management staff has enjoyed would be diminished greatly. The following is the schedule for enforcement of the local planning requirements:

- a. October 12, 1972, all cities, towns, counties and private agencies known to be operating or intending to operate solid waste disposal facilities were again notified of the November 12, 1972 deadline and minimum planning requirements distributed.
- b. On the November 12, 1972 deadline, a press release was prepared and distributed which outlined the requirements, stated that some cities have failed to present a plan, outlined what the Department has done to tell everyone about the requirement and put everyone on notice of the Department's intent to see the requirement met.
- c. On the 15th of December, 1972, a letter was sent to all noncomplying agencies, reminding them of their failure, the necessity for compliance, our past efforts, and our intention to secure compliance.
- d. On January 1, 1973, the Department of Environmental Quality was established, and the plan deadline moved to this date.
- e. On January 15, 1973, the Executive Director issued an order to all towns not complying with the requirement.
- f. A press release on February 1, 1973, discussed the requirement, past agency activity, the fact that some people have not complied even after ordered to do so, and the Agency intention to refer these cases to the Attorney General.
- g. Selected cities have been referred to the Attorney General's Office from April 9, 1973, to the present.

7. Planning Conclusion

The Solid Waste Management Division has enjoyed a great deal of success in the planning phase of the solid waste management program, generally achieving its planning phase objective.

This success can be attributed to several factors:

- a. The general positive attitude of the public toward a clean environment.
- b. The high degree of competence and motivation exhibited by government officials and private citizens in their pursuit of environmentally acceptable solid waste management systems.

- c. The success of the Department policy of striving for systems which would be of adequate size to maximize operational advantages so that such systems will be financially successful.
- d. The success of the Department policy of having local agencies involved in establishing the solid waste system plans. This has resulted in local interest to a point where most of the new systems are actually tailored to local needs.
- e. The Department policy of a firm enforcement posture has resulted in no formal enforcement actions to date. In every case, results have been obtained short of court actions.

Thus, the Department's success in this phase of achieving its planning goal can be attributed to an excellent solid waste law, good timing, and effective Departmental policies.

C. PHASE TWO: IMPLEMENTATION PHASE

1. Objectives

As was previously stated, the objective of this solid waste management approach was to facilitate a complete changeover in Iowa's solid waste disposal methods by implementing planned systems which would be environmentally acceptable thus eliminating the hundreds of dumps which have been used for generations. This objective coincides exactly with the intent of Iowa's solid waste law.

2. Legal Considerations

The second phase of the solid waste effort as outlined by the Legislature in its Bill, was the implementation of plans. The Rules developed pursuant to the law allow any dump or sanitary disposal facility which began its operation prior to October 1, 1971, to continue operation without a permit until July 1, 1975. However, any new facility would be required to have a permit and all facilities must qualify for a permit by July 1, 1975. Thus, many of Iowa's communities are planning to use their present facilities until 1975. The most recent trend, however, is away from this. Many of the communities have discovered that as the planning phase is completed, a momentum has been built up which carries

them into the implementation phase and finally into operation.

The type of sanitary disposal project which is emphasized in the Rules (see Appendix II) are sanitary landfills. Other processing and disposal methods for solid waste are also authorized in the Rules. Soils, geology, climate, topography and land use are given major consideration in sanitary landfill site selection. Engineering plans must describe the proposed sequence of development and ultimate land use including cross section drawings. Applications for a permit must be prepared by or under the direct supervision of an engineer who is registered and licensed in Iowa.

The Iowa Geologic Survey, (I.G.S.) through a joint agreement with DEQ (see Appendix XIII) provides consultant services to the Department on the geology and soils involved in sanitary landfill permit application review. Both I.G.S. and D.E.Q. provide on-site examination of the proposed sanitary landfill sites.

Sanitary landfill operating procedures prohibit open burning and scavenging. Solid waste should be compacted on a 3 to 1 slope and the site must be covered and graded in order to minimize the generation of leachate and pollution of ground and surface water. The site facilities required are described in detail in the Rules. All disposal projects must be inspected annually.

A permit may be suspended or revoked after notice and a hearing before the Commission or its designee when a sanitary disposal project is deemed not to meet State requirements.

3. Local Agency Action

The emphasis of the solid waste staff for the implementation phase will be to maintain the momentum generated by the planning until all of the solid waste systems in the State are operational. The implementation of these plans will not occur unless continuous pressure is applied. The critical period is between July 1, 1973 and July 1, 1974, because after that period the plans will be formulated in final draft and the implementation process will, of necessity, be underway. The deadline for beginning the implementation phase of the planning process cannot be later than July 1, 1974, because the necessary implementation procedures

generally require at least a year. Therefore, if the pressure, through technical assistance and public information as well as enforcement, is not continued, many of the communities will not be able to comply because of the natural tendency for them to ease their efforts after a requirement is met.

Therefore, it is one of the Division's objectives to maintain a constant pressure upon local officials until systems become operational. This pressure will be applied through increased technical assistance and information distribution. The assistance will be directed toward aiding the local agencies in application for permit and the eventual operation of their system. Groundwork for this approach was laid in the planning phase. Legal action will, however, be taken against nonconforming operations.

The initial solid waste plan requires that communities prepare an implementation schedule for all major events prior to the establishment of the sanitary disposal project. The staff will then contact the local agencies at the time each of the events is to occur offering technical assistance and guidance while monitoring their progress. Using this tactic, the local agencies will be kept under constant pressure for the implementation of their plans. In this way, the Solid Waste Division hopes to maintain a persuasive rather than enforcement approach.

4. Technical Information

In addition, information will be provided local agencies on a basis of need. This information will be provided so that those local agencies will have the latest technical information at a time when it is most appropriate. At present, only two implementation phase documents have been devised, simply because this phase is just beginning and the demand has not yet been created for other publications. The two publications which are in demand are "Guidelines for the Preparation of a Sanitary Landfill Permit Application" and "Sanitary Landfill Design and Management".

The "Guidelines for the Preparation of a Sanitary Landfill Permit Application", (see Appendix XIV) has begun to show an ever increasing demand as more and more permit applications are requested. This paper goes through the procedures for complying with the rules and regulations for

the establishment of a sanitary landfill on a step-by-step basis. It explains to the engineer exactly what the Department is looking for in a permit application. These Guidelines coupled with another paper available from the Department "The State of the Art in Sanitary Landfill Design and Management", have proven to be in great demand by consulting engineers and local governmental officials alike in their quest for a sanitary landfill permit. These papers will be utilized even more as additional landfills are to be developed.

Although a few cities are trying other methods of sanitary disposal, almost all of Iowa is going to sanitary landfills for disposal of refuse. Sanitary landfills have many advantages over other types of sanitary disposal. They require less capital investment than most other processes, can accept most kinds of solid waste without segregation, produce almost no air pollution, and provide final disposal. In addition, the system is flexible in that conversion to other processes at some further date is possible because of the low capital investment.

5. Present Situation

Presently, there are nineteen certified sanitary landfills (see Figure 6) which represents a significant number since certification began December 10, 1971. With the additional eleven expected by January 1, 1974, a total of thirty will have been approved one and one-half years in advance of the deadline. Sanitary Landfill operations will be used on a county or multi-county basis although some cities plan to operate independent landfills.

No permits have as yet been issued for any other method of solid waste processing or disposal, however, applications are expected. For example, the City of Ames, is planning to burn combustible waste in their municipal power plant. A study done by a consultant firm indicated that it would be "feasible to burn municipal refuse in the existing power generating equipment up to a daily rate of approximately 200 tons per day".

The plan calls for power plant modification to handle the combustible waste fraction and a refuse processing plant to shred the waste and extract metals and noncombustibles. In addition, a refuse storage facility is

planned. It is estimated that the processing plant will handle 205 tons by 1985, approximately 35 percent of which will be noncombustible.

6. Future Technical Material

The technical material requested in the future will emphasize implementation type information. It is expected that a demand will arise late in the implementation phase for certain kinds of materials (See Table 2) and this demand should carry over into the operational phase.

Another Division objective which will effect the implementation phase is enforcement. Without a stringent enforcement policy, sanitary disposal permit applications would not be forthcoming. The attitude of the Department which prevailed through the planning phase will continue. That is, that an enforcement policy which never has to be fully exercised is best. This requires that persuasion and technical assistance be primarily emphasized, but backed by a tough enforcement posture.

The Department has reason to expect that the implementation phase of the program will reach its objective by July, 1975, because of the planning phase impetus and because of the Department's approach of constant pressure through technical assistance backed by strong enforcement.

D. PHASE THREE: OPERATIONAL PHASE

1. Objectives

The third and final phase of the solid waste program, The Operational Phase, will begin on July 1, 1975. This phase will begin with all facilities being operated under State permit. The Department's objective will be to encourage continual improvement of the systems so that they are both environmentally sound and efficiently managed. This will insure state-wide systems which will perpetually operate to the general satisfaction of everyone concerned.

2. Staff Action

Properly operated systems can be achieved if the Department assumes the roles of monitoring and enforcement. The function of the solid waste staff will again change to comply with such a program. This action will

Table 2

EXAMPLES OF IMPLEMENTATION AND
OPERATION LITERATURE NEEDS

- (1) An accounting system for solid waste collection.
- (2) An accounting system for transfer station operations.
- (3) Solid waste collection, transfer, and disposal for rural areas.
- (4) Planning for solid waste collection, including route design.
- (5) The economics of size - in recovery, recycling, and reuse of solid waste.
- (6) Handbook for the disposal of industrial, agricultural and hazardous waste.
- (7) Iowa Digest of News & Views on Solid Waste Management.
- (8) Manufacturers' maintenance, shop and parts manuals.
- (9) Schedule of servicing, maintenance and repair record for landfill equipment.
- (10) Ten ways of improving landfill operations.
- (11) Alternatives in the rural and urban collection of solid waste.
- (12) Better ways of storing home and commercial solid waste.

take the form of staff visits to the various sanitary disposal projects to provide technical assistance to the operation, in an effort to continually improve Iowa's overall solid waste program. The monitoring of sanitary disposal projects will be primarily concerned with the following areas. First, is the project following the design criteria stipulated in the permit? Second, can newly developed solid waste procedures be adopted to either improve the operation or cut the cost? Third, is the facility nearing the end of its useful or design life?

Specific action for the first and third of these above mentioned areas can lead to the revocation of a permit. Any project in continuous violation of the rules and regulations which are enforced by their permit system will be closed, thus causing the operation to cease and alternatives to be found. Any sanitary disposal project which is found to be at the end of its useful life will be given notice of permit termination and the responsible agency will be charged with the responsibility of planning a new facility and certification of the new facility.

VI. SPECIAL PROJECTS

A. PROBLEM IDENTIFICATION

One of the benefits of local planning as mentioned earlier was the identification of specific problems which are not compatible with local planning efforts. As was expected, several problems were identified, and work was begun at the State level. The problems which have been identified are junk cars, hazardous waste, demolition waste and radioactive waste.

The problem of junk cars was the first to be identified and solved. This problem turned out to be the least complex and it was essentially solved by private industry. This Department began extensive research into the problem during the spring of 1972. Ideas were developed which eventually led to its solution by efforts of DEQ, Office of Planning and Programming, and private industry. This problem has been solved in a manner which has proven to be beneficial to the State, local government, and private industry and at practically no cost.

The problem of hazardous waste is quite a bit more complex and as a result, the research is still being done. Although analysis of the problem is required before effective action can be taken, because of the emergency situation caused by spills of hazardous materials, a spill contingency system is now being established.

The problem of demolition waste has been studied and a report prepared which should ultimately lead to the promulgation of rules and regulations.

The problem of radioactive waste until recently, has not been considered a serious problem in Iowa. As a result, actions in that area have been temporarily deferred, because of budgetary limitations. The area will, however, be given some consideration and included as one of a number of hazardous wastes.

B. JUNK CARS

One of the major solid waste management problems confronting the State of Iowa is that of dealing with the 600,000 to 800,000 junked or abandoned cars presently littering the landscape and the estimated 300,000 cars which are added to the total each year.

Junked or abandoned cars represent one of the worst forms of pollution arising out of the automotive industry. Although some 80 percent of the approximately 6.5 million cars in the United States which are removed from state registration lists each year enter the salvage cycle through auto dismantling yards or salvage processing sites, the remaining 20 percent, or 1.3 million, end up scattered across the countryside or in the junk yards which dot the land. Furthermore, the figures quoted above do not even include those cars which have been abandoned in isolated locations, but remain on state registration lists.

The cars which have been abandoned and often times stripped of all usable parts block city streets, fill much needed parking lots, clutter open spaces, degrade parks and recreation areas, occupy farmers' fields, and fill stream channels.

Several recent developments have made the processing of abandoned cars a profitable enterprise. The new steel industry processes have increased the demand for domestic scrap. Along with this, an increase in value of metal has made it more economically feasible for local scrap dealers to begin recycling junk cars. Two new developments in the auto recycling process have also aided in making the processing of junk cars profitable. The portable car crusher helps to reduce some of the collection costs by making it possible to operate the crusher in a location where 250 cars have been collected. The crusher accepts an entire car--body, motor and all--and reduces it to a fourteen foot by eight foot, six to eight inch thick pancake. These crushed cars can then be easily transported by rail or truck to the second new recycling process development--the car shredder.

Car shredders chop the crushed cars into thousands of fist-sized pieces which can then be sorted to separate the glass, iron, steel, and other metals for recycling. Car shredders available to Iowa are located in Kansas City and St. Louis, Missouri; Chicago, Illinois; Beloit, Wisconsin; and St. Paul, Minnesota.

Following the lead of the Chicago and Northwestern Railway and their project "PRIDE", the Office for Planning and Programming, in conjunction with the Department of Environmental Quality and various local communities, has initiated a campaign to remove the junk cars in their areas. The program offers the transportation management capability, the special rail equipment,

the communications assistance, and other special expertise not available in local communities to all Iowans served by the Chicago and Northwestern Railway. The PRIDE program got its start in Iowa in the community of Hampton during the summer of 1972. From there the program spread to Mason City, Eagle Grove, Belmond and Britt.

The Office for Planning and Programming works closely with the Solid Waste Management Division of the Department of Environmental Quality, the Highway Commission, the Chicago and Northwestern Railway, commercial crusher operators, citizens groups, and local communities in the planning and development of the State-wide junk car clean-up effort. Individuals and organizations such as the rural letter-carriers, Girl Scouts, Boy Scouts, Future Farmers, and 4-H Club members are assisting in the locating of the cars. The Jaycees, Lions and other service organizations are working on methods to collect the cars. In some areas, the Iowa National Guard is making the actual pick-up.

The largest current effort to recycle junk cars is in Northwest Iowa where a pilot program directed by DEQ's Region Office is underway in a regional nine-county area. The Department of Environmental Quality has estimated that at least 50,000 abandoned cars are in the area which consists of Lyon, Sioux, O'Brien, Osceola, Clay, Dickinson, Emmet, Palo Alto, and Buena Vista counties.

The pilot program, which is completely voluntary, began with an inventory of abandoned cars by townships. The cars were then collected and removed to central sites for crushing, and to-date, about 14,000 cars in nine counties have been recycled. All of these cars have been picked up outside junk yards. Junk car recycling projects are also underway in Brayton, Lineville, Ames, Iowa City, Iowa County, Carroll County, Council Bluffs, Boone, Perry, Colo, and Sioux City.

To date, the program has been financed entirely through the use of State and local funds. The State Department of Public Safety maintains a fund of \$250,000 a year in the Motor Vehicle Registration Division for license plate refunds. This fund has been used in some areas to help defray the cost of collecting and transporting the cars to collection centers.

The long-range goal of the present junk car removal program is to establish permanent collection centers in communities across Iowa and to

implement an on-going program which can be expanded in a way that will lead to the clean-up of other rural scrap. Old farm machinery and the so-called white goods--the enameled refrigerators, stoves and other home appliances--which have been dumped on the Iowa landscape are also being recycled in the process of recycling junk cars where possible.

C. HAZARDOUS WASTE

While primarily a farm state, industry plays a significant part in Iowa's economy. In addition to the wide range of farm chemicals, industrial chemicals of all types are stockpiled throughout the State. Radioactive materials are also utilized in the State and estimates are that more will be used. Although many of these materials are of hazardous nature, no single State agency has any records of any kind concerning materials.

It can be seen that there is an enormous potential for environmental disaster resulting from an accidental spill or careless disposal of materials for which there is no current knowledge. To combat this problem, the State is developing a hazardous waste control system. The development of this system will be done in four basic steps. These are: (1) Revision of the statutory language which created the Department of Environmental Quality and enactment of legislation delegating legal authority to DEQ as necessary for the hazardous waste control system; (2) Establishment of a hazardous materials inventory for the State of Iowa; (3) Design and implementation of a hazardous materials plan for the State of Iowa; and (4) Development of a satisfactory hazardous waste disposal repository and laboratory for the storage and/or final disposal of waste materials.

1. Revision of Statutory Language

The first step in the development of the hazardous waste control system is to revise existing laws and enact new ones, so that DEQ will have the authority necessary to implement and guarantee the success of the system. For example, DEQ must have the authority to require all manufacturers, repository owners, and users in the State to report the type and range of quality of any hazardous materials that they currently maintain. In addition, DEQ must have the authority to regulate the

the manufacture, transportation, storage and use of any hazardous material to ensure safe handling. Also, it is a requisite that DEQ have authority to specify methods of disposal of these substances.

2. Hazardous Materials Inventory

In order to provide adequate facilities for disposal of hazardous wastes and to be prepared to control spills of hazardous materials, an inventory must be taken to determine the nature and amount of such materials maintained in the State. This is currently being done with the aid of the Department of Public Defense (DPD) and the Chemical Technology Division of DEQ. The DPD is providing address listings of organizations in Iowa that produce, transport, store, or use hazardous materials. A questionnaire will be sent to these firms and the information received will be placed in a computer file that is accessible through an extremely versatile data access program. An integral part of the program which will be constantly updated as new information is received. From this inventory, the continuously revised high hazard potential list will be prepared as the basis for the primary hazardous materials spill contingency system.

3. Hazardous Materials Spill Contingency System

In the event of a spill of hazardous materials, it is imperative that trained personnel be available to take quick and appropriate action so that a minimum of environmental damage will occur. Iowa's Hazardous Waste Spill Contingency System calls for a central response team of 3 to 4 individuals with intensive training in spill control technology. This team will be more effective than regional personnel, because the team will have more exposure to emergency situations and a higher level of training than would regional personnel. The central response team will establish a library of reference work and publish information regarding safe handling and disposal of hazardous materials.

To facilitate the establishment of the central response team, existing agencies will be contacted for information and suggestions. When established, the team will serve as a useful model for other states.

4. Hazardous Waste Disposal Site

At present, there is not a public site for safe disposal of hazardous materials in Iowa. The nearest known site is Sheffield, Illinois, and reports indicate that the site is becoming full. Iowa needs a facility that can both store and process many different classes of substances. In addition, Iowa needs facilities to hold large quantities of a few materials.

D. CONSTRUCTION AND DEMOLITION WASTE

As with all states, Iowa is experiencing difficulties in handling construction and demolition waste. A staff study has shown that disposal of demolition wastes with earth cover and without contact to ground water will result in virtually no problem of ground water degradation. Open dumping or dumping in ground water will however result in most cases in significant degradation of the groundwater supply.

Based on the information gathered, the Department intends to develop specific rules for the site location, design and operation of construction and demolition waste disposal landfills. At this time, the significant differences between these sites and sanitary landfills will be a lessening of geologic requirements because of a decrease in leachate production potential and once a week cover to provide for a cell structure and reduce water infiltration.

VII. EXISTING LEGAL AUTHORITY

There are a number of State and local departments or agencies involved in regulating different aspects of solid waste management in Iowa. The following are the most significant of these.

A. DEPARTMENT OF ENVIRONMENTAL QUALITY

In 1970, the General Assembly assigned the Department of Health the responsibility of overseeing the disposal of solid waste in Iowa. (Chapter 406 Code of Iowa, 1971.) This law provided for a three-phase program through which Iowa could update its antiquated and unregulated system of open dumps. These open dumps are to be replaced by a series of sanitary disposal facilities.

The first phase of this program was designated the planning phase. It originally covered the period from the effective date of the Solid Waste Law up to November 12, 1972. This was subsequently extended to January 1, 1973. During this period of time any city, town, county, or private agency operating a sanitary disposal project or planning to do so after July 1, 1975, must file with the Department of Health a plan detailing its methodology. The present status of communities with respect to this phase is outlined in Appendix VI.

Phase two of this program is the implementation phase. This phase begins with the approval of the operating plans and includes the site certification process and the development of a collection system. The Solid Waste Law requires that all solid waste disposal sites in operation after July 1, 1975, meet all requirements outlined above.

Phase three is the operation phase. It involves the operation of sanitary disposal facilities according to the requirements of Chapter 406, Code of Iowa, 1971, and according to the standards outlined in each approved operating plan site certification.

Those agencies desiring to operate a solid waste disposal facility, which are not subject to the previously mentioned deadlines, must proceed through these phases on a time frame to be determined as the situation arises.

Effective January 1, 1973, the provisions of Chapter 406, Code of Iowa, 1971, were transferred to the Department of Environmental Quality.

These provisions are now found in Chapter 455B, Code of Iowa, 1973. (Appendix I).

Chapter 455B, Code of Iowa, 1973, also created a Solid Waste Disposal Commission within the Department of Environmental Quality. This Commission has the power to promulgate rules "relating to the establishment and location of sanitary disposal projects, sanitary practices, inspection of sanitary disposal projects, collection of solid waste, disposal of solid waste, pollution controls, the issuance of permits, approved methods of private disposition of solid waste, (and) the general operation and maintenance of sanitary disposal projects...". (455B.78) The present rules concerning solid waste as promulgated by this Commission, can be found in Appendix II. Steps are being taken to amend the rules so they conform with Chapter 455B, Code of Iowa, 1973.

Other provisions of Chapter 455B, Code of Iowa, 1973, include the transfer of the Environmental Engineering Service of the Department of Health and its responsibilities to the new Department of Environmental Quality. The Chemical Technology Review Board of the Department of Agriculture was also transferred to the Department of Environmental Quality. Thus, in the Department of Environmental Quality, lies most of the State's enforcement power in Air Quality, Water Quality, Water Supply, Solid Waste, and Chemical Technology. The rules promulgated by the Air Quality Commission apply to the burning of solid waste. The rules are available from the Department.

B. DEPARTMENT OF HEALTH

The State Department of Health and several governmental bodies directly related to it, have retained some general authority over the disposal of solid waste in Iowa. The Department of Health's jurisdiction is retained to insure that no health hazards or nuisances are created and to insure sanitary conditions are maintained in the disposal of solid waste (Chapter 135.11, Code of Iowa, 1973).

C. OTHER STATE AGENCIES

Several other State agencies have authority over specific types of projects related to solid waste disposal. The Office for Planning and Programming and

the Department of Public Safety are involved in the disposal and/or recycling of junk or abandoned cars in Iowa. The Office for Planning and Programming also provides assistance to communities in planning for the establishment and operation of solid waste management systems. OPP works closely with DEQ in this regard.

The Iowa Natural Resources Council has the responsibility to develop and enforce a comprehensive state-wide water resources plan. The Council also has the authority to regulate the use of flood plains through the issuance of permits (Chapter 455A.18, Code of Iowa, 1973). Through this permit authority, the Council can control the establishment and operation of solid waste disposal facilities in flood plain areas.

The State Department of Agriculture prescribes the method for disposal of dead animals (Chapter 167.12, Code of Iowa, 1973). The Department of Agriculture also regulates the handling of solid waste products for restaurants, hotels, and food establishments which are subject to decomposition or fermentation (Chapter 170.19(3), Code of Iowa, 1973).

Under the Conservancy District Act, the State Soil Conservation Committee has the authority to mandate the conservation and proper control and use of the soil and water resources of Iowa. (Chapter 467.1, Code of Iowa, 1973.) The Soil Conservation Committee, through this mandate, may determine measures of control the erosion of soil by wind and water. It is through this part of the mandate that the Soil Conservation Committee has some measure of control over the location and operation of solid waste disposal facilities.

The Iowa Bureau of Labor is responsible for carrying out the provisions of the Federal and State Laws and regulations concerning occupational safety and health. Chapter 88, Code of Iowa, 1973, outlines the general policies and standards for occupational safety and health in Iowa. Chapter 3-6, 10 and 30, of the Iowa Bureau of Labor's Departmental Rules present the specific standards for occupational safety and health in Iowa. As stated in Chapter 10.1 of the Bureau of Labor's Departmental Rules, "The standards and regulations together with the amendments thereto, as adopted by the United States Secretary of Labor shall be the standards and regulations for implementing the Iowa Occupational Safety and Health Act."

D. LOCAL CONTROL

The laws of the State of Iowa distinguish between two local governmental units. Incorporated cities and towns have local authority over solid waste management within their boundaries. The County Boards of Supervisors have local authority over the remaining unincorporated portions of each county. In addition, public agencies may form a joint organization in order to make efficient use of their powers (Chapter 28E, Code of Iowa, 1973).

1. Operating Authority

The governing bodies of cities and towns have the power to provide for the collection and disposal of all types of solid waste and to establish or purchase solid waste disposal grounds or facilities. They also have the power to equip, operate, and maintain such grounds and to impose a schedule of fees for collection and use of disposal facilities (Chapter 394.1 and 394.5, Code of Iowa, 1973). Cities and towns may operate a solid waste management system or contract with private collectors for the collection of solid waste within the city or town (Chapter 368.24, Code of Iowa, 1973).

The County Board of Supervisors may determine the need for solid waste disposal grounds in their respective counties. They may also determine the location of such grounds, levy a tax not to exceed one-fourth mill in the townships served by such grounds, establish rules and regulations governing the use of the disposal grounds, and enter into contractual agreements with cities, towns, and private corporations or persons for the use of public or private disposal grounds. The monies received as a result of the operation of disposal grounds are to be placed in a township dump fund. This fund may be used for the purposes of acquiring, constructing, operating, and maintaining sanitary landfills. (Chapter 332.31 - 332.34, Code of Iowa, 1973.) Through their Boards of Supervisors, counties may also operate collection services individually (Chapter 394.1, Code of Iowa, 1973) or with cities and towns in a joint organization (Chapter 28E.12, Code of Iowa, 1973).

2. Financing Authority

Chapter 404.2 of the Code of Iowa, 1973, states that cities and towns have the power to establish seven "functional funds" and to cause taxes

to be levied on all taxable property within the corporate limits...the aggregate not to exceed thirty mills...". These seven functional funds are: (1) general government; (2) street fund; (3) public safety fund; (4) sanitation fund; (5) municipal enterprises; (6) recreation; and (7) utilities (Chapters 404.6-404.12, Code of Iowa, 1973). The sanitation fund may be used to purchase "dump grounds and sanitary disposal projects", "and to pay the cost of collection and disposal of solid waste, garbage and refuse..." (Chapter 404.9(3) and 404.9(5), Code of Iowa, 1973). Table 3 shows the status of the functional fund millages for cities and towns with relation to the thirty mill limit.

In addition to the functional funds, the cities and towns may establish a debt service fund and trust or agency funds. The debt service fund may be used "to pay all judgments against the municipal corporation other than those specifically authorized by law to be paid from other funds." (Chapter 404.13(1), Code of Iowa, 1973.)

Cities and towns may also contract indebtedness and issue general obligation bonds to provide funds to pay the cost of establishing, constructing, acquiring, purchasing, equipping, improving, extending, reconstructing, and repairing sanitary disposal projects... or acquiring land for dump ground purposes" (Chapter 404.19(z), Code of Iowa, 1973).

Chapter 404.27, Code of Iowa, 1973, states that cities and towns may levy a tax not to exceed one-quarter mill for the purpose of planning a sanitary disposal project. This tax shall not be subject to the thirty mill limit and may be levied only once.

The County Boards of Supervisors may levy a tax of not more than one-quarter mill on property in the county outside incorporated areas for the purposes of acquiring and maintaining public disposal grounds and of planning a sanitary disposal project. The Boards of Supervisors may also "contract indebtedness and issue general obligation bonds... to pay the cost of establishing, constructing, acquiring, purchasing, equipping, improving, extending, reconstructing and repairing sanitary disposal projects..." (Chapter 346.23, Code of Iowa, 1973). The denominations of these bonds shall not exceed ten thousand dollars.

Table 3

FUNCTIONAL FUND MILLAGES

<u>Range</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
At 30.000 mill limit	160	171	154
29.000 - 29.999 mills	119	91	108
28.000 - 28.999 mills	141	96	111
27.000 - 27.999 mills	60	112	96
Under 27.000 mills	<u>471</u>	<u>481</u>	<u>483</u>
Total	951	951	952

Each city, town, or county may levy a tax for an emergency fund not to exceed one mill upon approval of the State Appeal Board. These funds may be transferred to any other fund of the city, town, or county upon approval of two-thirds of the governing body and approval of the State Appeal Board. Counties may use these funds as matching funds for federal programs, including, but not limited to, "...public health ...and pollution" (Chapter 246, Code of Iowa, 1973).

3. Regulatory Authority

Local Boards of Health may also issue licenses and permits for solid waste collection or disposal and charge a reasonable fee for such (Chapter 137.7(4), Code of Iowa, Code of Iowa, 1973). In addition, these local boards can make and enforce rules for the protection and improvement of public health (Chapter 137.6(2), Code of Iowa, 1973).

Local Boards of Health may be county boards or city boards, if the population is greater than 25,000, or district boards, where approved.

E. FEDERAL AGENCIES

The bulk of the legal authority within the Federal government which specifically controls solid waste management systems from an environmental standpoint rests within the U. S. Environmental Protection Agency. Of particular importance as concerns water pollution control is the 1899 Refuse Act and the 1972 Amendments to the Federal Water Pollution Control Act. The Clean Air Act is the Federal legislation controlling air pollution emissions and standards. The Solid Waste Disposal Act has regulatory aspects over Federal facilities.

The Federal laws are so complex as well as fast moving that no attempt will be made in this document to spell out specific requirements. The Iowa Department of Environmental Quality and the EPA Regional Office in Kansas City can provide current information as applicable to given instances.

VIII. NEEDED LEGAL AUTHORITY

The State has what could be considered to be nearly adequate legal authority for the management of solid waste. The authority is through specific solid waste legislation, enabling legislation for local government, and rules governing solid waste management in the State. Additional authority is needed in several diverse areas in order for the management of solid waste to be adequate from all aspects. The following discussion concerns specific areas of need and a tentative schedule of action to accomplish the actions required.

This is not intended to be an exhaustive discussion of the subject. Instead, it is intended to provide some insight into the directions the Division, Department, and Commission are planning to move. As with all plans, the State solid waste plan is dynamic and will be constantly changing. As certain goals are reached, other goals are developed including necessary legal authority to reach these goals.

Table 4 at the end of this Section provides a time table for proposed legal changes.

A. DEPARTMENT OF ENVIRONMENTAL QUALITY

Most changes in legal authority involve the Department of Environmental Quality including the following:

1. Hazardous Waste

The Department is currently developing a plan and control system for hazardous wastes and emergency spills of hazardous materials (see Section VI). An integral part of this plan is the development of State legislation allowing the statewide inventory of hazardous wastes and hazardous materials, regulation of storage and transportation of those materials, and provision of one or more State controlled or operated hazardous materials disposal site. The hazardous materials activity spans all elements of the Department, since all environmental concerns are involved. Legislation to enhance the Department's activities in this area should be introduced in the 1974 Legislature.

2. Industrial Waste

The adequate control of industrial solid waste was not included in the current State law. Industries disposing of their own waste on their own land must meet all environmental criteria including the Rules of the Solid Waste Disposal Commission. However, they are exempt from the permit system, thereby, making Department action awkward, if not nearly impossible except for flagrant violations.

The Department and the Commission will be developing alternatives for the improvement of industrial solid waste management. Two alternatives are now being considered: (1) Legislation to bring industrial waste disposal operations under the complete permit system; and (2) Legislation requiring an industrial waste discharge permit for all applicable industries. The second alternative could be incorporated into a Department permit for all environmental discharges.

Legislation for industrial waste control should be introduced into the 1974 Iowa Legislature for consideration.

3. Open Dump Closing

Although the operation of an open dump becomes illegal on July 1, 1975, no legal authority exists to require that open dumps be properly closed rather than just abandoned. During the 1974 Legislative Session, a measure will be introduced to require dump closing and to allow the Department and the Commission to develop Rules for proper closing procedures.

4. Disposal Site Title Registration

Although several states such as Missouri, do require registration of solid waste disposal sites as a permanent part of the deed records for the property, Iowa currently has no such control. The record of the location of past operations is no better than the memories of the persons directly involved. There are documented cases such as in Minneapolis, of the problem encountered when excavating or attempting to build on old solid waste disposal sites, particularly when no records indicated the existence or extent of the prior operation. Disposal sites receiving significant quantities of hazardous or toxic materials must particularly be protected from future development, especially if the existence of the site were not known to the potential developer.

The Department currently feels that a change of the Rules to incorporate registration on the property deed for all pertinent information and records will be sufficient for control of this deficiency. The Rule change will be proposed in the Spring of 1974. Legislation will be prepared if the Rule change mechanism is not allowable.

5. Annual Permits

In the short time the sanitary disposal project procedure has been in force, the Department has found that an open ended permit causes certain problems. Even though, the operations must be inspected at least once a year and the permits can be suspended or revoked, it requires considerable problems in management. A Rule change being planned for the Spring of 1974, will make the permits renewable on an annual basis with the official annual inspection approximately 90 days in advance of renewal. All deficiencies found will have to be corrected or the permit will not be renewed.

6. Operator Certification

The success of the State goal, to provide adequate solid waste service, is dependent on the ability of the persons conducting the operations and their dedication in providing the services. Managers and operators for the needed collection and disposal systems do not now exist. The Solid Waste Management Division will be undertaking training for the supervisory and operating personnel for the systems. At present, any such program must be voluntary since the Department does not have any certification program for solid waste operators.

It is currently anticipated that provision for certification of solid waste operators will be introduced into the 1975 Legislature. This will allow for approximately one year of development of what should constitute an adequate certification program.

7. Storage and Collection Uniformity

The Department currently has legislative authority to control all aspects of solid waste management including storage and collection. The present rules provide only cursory treatment of the area. Expanded control

is possible in this area without additional legislative authority. At this time, the Department and the Commission have not addressed what direction the control is to take, and to what extent controls are needed. The Rules will, however, be updated for storage and collection at the same time other aspects, such as sanitary landfilling and demolition waste disposal are improved in the Spring of 1974.

8. Land Use Planning

Many states and the Federal government are now recognizing the importance of land use planning as the ultimate goal in environmental control. In the broadest interpretation, it is environmental control through the control of all development. The State of Iowa shall be seeking certain aspects of land use planning with at least the first step being seen as control of large facilities such as athletic and shopping centers being reviewed for all environmental impacts prior to approval of construction. Adequate solid waste services will not be the least of the aspects which must be considered. It is anticipated that the 1974 Legislature will consider land use planning.

B. OTHER STATE AGENCIES

Adequate solid waste service requires a viable partnership between the State, local governments, and the private solid waste section. As in most places, the private sector in Iowa is steadily growing in numbers and level of influence. The Department has no desire to hinder the growth of private enterprise in solid waste management. We do, however, have many concerns over uncontrolled development into either extreme of poorly operated enterprises competing for customers or large monopolies completely controlling all aspects with no checks on prices charged or level of service provided.

During the 1975 Legislature, the Department and the Commission will attempt to secure a degree of control over the private sector through establishing solid waste collection and disposal as a public utility. The legislation will be patterned after the best legislation now available in other states for the control of solid waste utilities. At present, it seems likely that this regulatory authority would be vested in some state agency, other than the Department of Environmental Quality. However, the specific agency is yet to be determined.

C. LOCAL ENABLING LEGISLATION

Cities and counties are currently making good efforts to provide adequate solid waste management for their citizens. One of the most important roles of the State is to provide all necessary assistance including enabling legislation for these agencies to better operate or control solid waste services. These powers can then be granted to regional agencies, if desired. The Following is a discussion of some specific legislation which hopefully will be introduced in the 1974 or 1975 Legislative Session: (1) Legislation specifically authorizing counties to operate or contract for operation of collection systems for their citizens; (2) Legislation allowing cities and counties to establish mandatory collection services for all of their citizens whether tax or service charge supported; and (3) Legislation allowing special tax levies to finance solid waste collection systems where deemed appropriate by the local agency.

TABLE 4

<u>Proposed Legal Change</u>	<u>Date of Initiation</u>
Hazardous Waste Legislation	1974 Legislature
Industrial Waste Legislation	1974 Legislature
Open Dump Closing Legislation	1974 Legislature
Land Use Legislation	1974 Legislature
Operator Certification	1975 Legislature
Public Utility Legislation	1975 Legislature
Local Enabling Legislation	1974 & 1975 Legislature
Disposal Site Title Registration	1974 Rule Change
Annual Permits	1974 Rule Change
Storage and Collection Uniformity	1974 Rule Change

IX. PROGRAM PLAN

A. HISTORY OF PROGRAM

The composition of the State solid waste staff has been dynamic over the years. The number of positions and the type of expertise involved has varied generally with demand for services. Prior to 1970, when the program was in its beginning stages, and solid waste was a minor program of the Health Department's General Sanitation Division, only one person was employed. This person was a sanitary engineer with a very broad general background and his effort was devoted to the general upgrading of Iowa's disposal facilities.

When the program initiated the planning phase, new expertise was required and more positions were established. The areas of particular concern were planning, plan review, and technical assistance and specialists were hired. When the Department of Environmental Quality was formed, need for other kinds of expertise as previously recognized were formalized and established in the new organization. Subsequently, new individuals to fill positions have been sought. The new organization was designed to carry the Division of Solid Waste Management through the implementation phase and into the operational phase. However, certain functions will diminish as time progresses. Initially, the program was devoted exclusively to technical assistance particularly in the areas of technical advisory services and complaint investigation. Then, during the planning phase, planning attained primary importance especially in the area of local planning. Technical and planning assistance has become extremely important to Iowa's local governments as they seek certification of their sanitary disposal projects. Also with the completion of the planning phase of the State's solid waste program, enforcement has become possible. These local agencies which have not complied with the planning requirement have suddenly become vulnerable to legal action which was not possible until November 12, 1972. The enforcement program will continue to develop into the operational phase where it, along with technical assistance, will become the major emphasis of the program.

As certified sanitary disposal projects opened in Iowa, a new problem became obvious due to the stringent requirements placed on these projects.

This problem was that of handling hazardous, toxic and special wastes. This has given rise to a need for specialized expertise which subsequently was acquired.

Iowa's solid waste staff members have, of necessity, been flexible within the limits of their individual expertise because of the small number of positions available. However, the situation has broadened the experience and extended the variety of tasks which the staff members perform. The solid waste program, because of its broad and dynamic nature, has tended to attract employees of a similar nature. This is a healthy condition for both the program and the staff because it will probably be several years into the operational phase before the program develops a rigid formal structure brought about by the need to handle primarily routine actions.

The greatest expansion of the State's solid waste program will probably occur during its implementation phase because of the demand for technical assistance from the staff.

When the solid waste program enters the operational phase, the demand for planning and plan review services will diminish substantially whereas the need for enforcement, monitoring, and technical assistance will increase. The Division will probably at that time begin to experience a decline in personnel to a relatively stable level. This will occur as the demand for services diminishes and those services become routine.

B. APPROACH TO PROGRAM PLANNING

In the development of a program plan for the Solid Waste Management Division, it is recognized that the only plans which can be fully developed are for those areas which currently are covered by legislation and rules and regulations. The areas which are included in this category are: (1) program direction and administration, (2) local plan certification, (3) sanitary disposal project permit issuance, (4) disposal project inspection, (5) technical assistance for disposal operations and limited assistance for collection, (6) legal activities related to the above projects, (8) planning for hazardous and toxic waste management.

Areas of program development for which the Division currently lacks adequate direction by either legislation, rules, or Commission policy, will be discussed separately with estimates made for the program needs. The timing for initiation of the activities makes projections by fiscal years impossible. The areas of program development to be discussed are: (1) hazardous and toxic wastes disposal, (2) industrial waste disposal, (3) demolition waste disposal permits, and (4) storage and collection of solid waste.

C. PROJECTED CURRENT PROGRAM NEEDS

Table 5 relates the manpower needs for the Solid Waste Management Division to conduct current activities for the next five years. In addition, the limited manpower available from the personnel in the six regional offices for the Department must be added. The time period of July, 1974, to June, 1975 (FY75) is a crucial time for the Division in order to adequately review and issue permits, as well as supervise initial operation of approximately 75 sanitary landfill sites expected to be approved during this time. An estimated 120 facilities will serve the State with the majority being started in this one-year period prior to the June 30, 1975, deadline. The following fiscal years will see development into a more routine program, encompassing inspection of sites and issuance of permits for replacement sites. Fiscal Year 1975, is crucial from the standpoint that the budget and manpower levels have been passed by the legislature, and may fall short of program needs if adequate federal funds are not available. Table 6 shows the staffing and funding levels for Fiscal Years 1973 and 1974. Table 7 shows the same information projected for FY 1975, through FY 1978.

D. HAZARDOUS AND TOXIC WASTE DISPOSAL

As discussed in Section VI on Special Projects, the possible directions that Iowa may take on handling of hazardous and toxic waste, including radioactive materials, are numerous, and vary from permits to actual operation of disposal facilities. The plan developed for the materials will explore the potentials and recommend the direction the State should take.

Table 5

MANPOWER REQUIREMENTS^{1/}
SOLID WASTE MANAGEMENT DIVISION
Fiscal Years - July 1 - June 30

<u>ACTIVITY/STAFFING</u>	<u>FY1974</u>	<u>FY1975</u>	<u>FY1976</u>	<u>FY1977</u>	<u>FY1978</u>
Administration & Management					
Program Director	1	1	1	1	1
Administrative Assistant	1	1	1	1	1
Clerical Support	3	3	3	3	3
Local Plan Certification					
Environmental Engineer	1.5	0.5	0.5	0.5	0.5
Disposal Operation Certification					
Environmental Engineer	1.0	3.5	1.5	1.5	1.5
Disposal Operation Inspection					
Environmental Engineer	0.5		1	1	1
Environmental Technician		1	2	2	2
Technical assistance					
Environmental Engineer	1	2	2	2	2
Legal Activities					
Hearings Officer	1	1	1	1	1
Training - Subprofessional					
Environmental Engineer		1	1	1	1
Environmental Specialist	1	1	1	1	1
Hazardous Waste Planning ^{2/}					
Environmental Specialist	2	2	2	2	2
TOTALS	13	17	17	17	17

^{1/} Does not include areas where direction is lacking, items D-G of this section.

^{2/} Hazardous Waste Activity not yet fully defined, staffing requirements expected to increase. When planning is completed, the hazardous waste unit will continue in an operational phase.

TABLE 6
Budget and Staffing FY 1973 - FY 1974

	FY 1973	FY 1974
Personnel Total	7	13
Administration and Management		5
Local Plan Certification		1.5
Disposal Operation Certification		1.0
Disposal Operation Inspection		0.5
Technical Assistance		1
Legal Activities		1
Training		1
Hazardous Waste		2

Budget Total	\$129,154	\$200.858
State	94,480	107,585
Federal	34,674	93,273

TABLE 7
Projected Budget and Staffing FY 1975 - FY 1978

	<u>CURRENT ACTIVITIES</u>			
	FY 1975	FY 1976	FY 1977	FY 1978
Personnel Total	17	17	17	17
Administration and Management	5	5	5	5
Local Plan Certification	0.5	0.5	0.5	0.5
Disposal Operation Certification	3.5	1.5	1.5	1.5
Disposal Operation Inspection	1	3	3	3
Technical Assistance	2	2	2	2
Legal Assistance	1	1	1	1
Training	2	2	2	2
Hazardous Waste	2	2	2	2
Budget Total	\$280,000	\$285,000	\$290,000	\$300,000

Projected Activities

	Personnel	Budget
Industrial Waste	0.5-5.0	\$10,000 - \$100,000
Demolition Waste	3	60,000
Storage and Collection	<u>1</u>	<u>20,000</u>
Total Additions	4.5-9.0	\$90,000 - \$180,000

E. INDUSTRIAL SOLID WASTE DISPOSAL

This area is outlined in the Legislative Needs Section as a priority for the Department. A minimum program would be to require the industries utilizing their own property to obtain a permit for the operation. A more far reaching proposal would be for each industry to obtain a "discharge permit" regardless of where the material is disposed. A part of the discharge permit would be the assurance of disposal site certification.

The first approach would require an estimated 0.5 to 1.0 man-years of environmental engineering manpower at a cost of \$10,000 to \$20,000 each year. The more comprehensive approach of discharge permits would require 2.0 to 5.0 man-years at a cost of \$40,000 to \$100,000 each year depending on the guidelines for which industries are included.

The discharge permit approach compliments the hazardous and toxic waste disposal program since most of these wastes originate from the industrial sources. In combination, the programs could be conducted with less manpower than if separated.

F. DEMOLITION WASTE DISPOSAL

The disposal of demolition wastes can be done under conditions less stringently controlled than for normal sanitary landfill operations. Current rules, however, provide for no differential. If some controls are not placed on these sites, the normal course is for open dumps to occur. Staff estimates are that on the average, for each sanitary landfill site, there will be a demolition disposal operation at a different location. This would indicate that approximately 120 such sites will be required. Estimates are that three environmental engineers will be needed for two years to bring these sites under permit with one engineer being capable of handling the permits program, thereafter. The first two years would cost approximately \$60,000 each with the following years costing about \$20,000.

G. STORAGE AND COLLECTION

The Division has legislative authority for the control of storage and collection across the State. The emphasis to-date, has been on disposal since this was felt to be first priority. As additional sanitary disposal

facilities are implemented and the numerous dumps closed, considerable effort must be placed on these aspects since hauling distances will increase and more awareness is made of the real costs of these services. In addition, to existing staff participation in these activities, the Division needs one additional manager of technical assistance for planning and implementing approved local solid waste storage and collection systems. This would be an estimated annual cost of \$20,000 to implement an effective program.

H. SUMMARY

The program plan is one of the most essential aspects of the State Plan since all accomplishments require the allocation of financial and human resources in order to achieve the goal. The budgetary and personnel management of Solid Waste Management Division will constantly undergo revision as availability of State and Federal funds fluctuate and the program priorities are shifted. The best program plan is a well-developed but flexible plan, which will facilitate achievement of the desired goals.

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- I Chapter 455B, Solid Waste Law
- II Rules for Solid Waste Disposal Projects
- III Local Planning Information Summary
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- V Status of 28E Agreements for Solid Waste
- VI Local Planning Status for Solid Waste
- VII Paper - "Local Solid Waste Planning for the State of Iowa"
- VIII Key Steps in the Development of a Sanitary Disposal Project
- IX Minimum Plan Requirements to Comply with Chapter 406.7, Iowa Code, 1973
- X Model Solid Waste Ordinance
- XI Model Contract for Residential Solid Waste Collection
- XII Example Sanitary Landfill Contract
- XIII Standard Operating Procedure between the Iowa Geological Survey and Environmental Engineering Service of the Iowa State Department of Health
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APPENDIX I
CHAPTER 455B
SOLID WASTE LAW

Code of Iowa, 1973
Chapter 455B

Division IV
SOLID WASTE DISPOSAL COMMISSION

Part I
SOLID WASTE

455B.75	Definitions.
455B.76	Duty of cities and counties.
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455B.78	Rules established.
455B.79	Certification of plans by director.
455B.80	Plans filed.
455B.81	Tax levy.
455B.82	Dumping - where prohibited.
455B.83	Appeal from order.
455B.84	Modification of rules.

455B.75 Definitions. As used in this Part I of Division IV, unless the context clearly indicates a contrary intent:

1. "Public agency" means a public agency as defined in Section 28E.2.
2. "Private agency" means a private agency as defined in Section 28E.2.
3. "Sanitary disposal project" means all facilities and appurtenances including all real and personal property connected with such facilities, which are acquired, purchased, constructed, reconstructed, equipped, improved, extended, maintained, or operated to facilitate the final disposition of solid waste without creating a significant hazard to the public health or safety, and which are approved by the executive director.
4. "Solid waste" means garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities. Solid waste may include vehicles, as defined by Section 321.1, subsection 1. Nothing herein shall be construed as prohibiting the use of dirt, stone, brick, or similar inorganic material for fill, landscaping, excavation or grading at places other than a sanitary disposal.
5. "Commission" means the solid waste disposal commission of the department.

455B.76 Duty of cities and counties. Every city, town and county of this state shall provide for the establishment and operation of a sanitary disposal project for final disposal of solid waste by its residents not later than the first of July, 1975. Sanitary disposal projects may be established either separately or through co-operative efforts for the joint use of the participating public agencies as provided by law.

Cities, towns and counties may execute with public and private agencies contracts, leases, or other necessary instruments, purchase land and do all things necessary not prohibited by law for the collection of solid waste, establishment and operation of sanitary disposal projects, and general administration of the same. Any agreement executed with a private agency for the operation of a sanitary disposal project shall provide for the posting of a sufficient surety bond by the private agency conditioned upon the faithful performance of the agreement.

455B.77 Administrator's duties. The executive director shall administer the provisions of this Part 1, of Division IV, subject to the rules established by the commission.

Local boards of health shall co-operate in the enforcement of the provisions of said part and the executive director may seek their aid and delegate administrative duties of the department to local boards of health in matters relating to solid waste, refuse disposal plants, and sanitary disposal projects.

455B.78 Rules established. The commission shall establish rules for the proper administration of the provisions of this Part 1 of Division IV which shall reflect and accommodate insofar as is reasonably possible those current and generally accepted methods and techniques for treatment and disposition of solid waste which will serve the purposes of said part which shall take into consideration such factors, including others which it may deem proper, as existing physical conditions, topography, soils and geology, climate, transportation, and land use, such rules including but not limited to rules relating to the establishment and location of sanitary disposal projects, sanitary practices, inspection of sanitary disposal projects, collection of solid waste, disposal of solid waste, pollution controls, the issuance of permits, approved methods of private disposition of solid waste, the general operation and maintenance of sanitary disposal projects, and the implementation of said part. Prior to issuance of rules or amendments thereto, the commission shall hold at least one public hearing on the proposed rules or amendments, and shall give notice of such hearing at least 30 days in advance by publishing notice in a newspaper of general circulation in the state. The air quality commission and the water quality commission of the department, shall cooperate with the commission in the establishment of such rules. All rules promulgated shall be subject to the provisions of Chapter 17A and Section 455B.7, subsection 3.

455B.79 Certification of plans by director. The executive director shall certify if disposal projects operated or planned to be operated by or for cities, towns, counties and those operated by private agencies meet the standards provided for by this Part 1 of Division IV and the rules of the commission, by issuing a permit for existing disposal projects which fully comply, and for planned sanitary disposal projects whose plans fully comply, with all provisions of said part and rules issued pursuant thereto. Permits shall be issued for existing disposal sites which have not met all the provisions of said part and rules issued pursuant thereto, if a comprehensive plan for compliance within the time limitations required by said part is developed by a city, town, county or private agency and is approved by the executive director. Every city, town or county of this state and every private agency involved in the final disposal of solid waste shall qualify for a permit by the first of July, 1975, or be subject to such legal actions authorized by Section 455B.82.

Permits shall be issued without fee by the executive director or at his direction, by a local board of health, for each sanitary disposal project operated in this state. Such permits shall be issued in the name of the city, town or county or, where applicable, in the name of the public or private agency operating such project. Each sanitary disposal project shall be inspected annually by the department or a local board of health. The permits issued pursuant to this section shall be in addition to any other licenses, permits or variances authorized or required by law, including, but not limited to, the provisions of Chapter 358A. A permit may be suspended or revoked after notice and hearing before the commission or its designee if a sanitary disposal project is found not to meet the requirements of the provisions of said part or rules issued pursuant thereto.

455B.80 Plans filed. Every city, town, county and every private agency operating or planning to operate a sanitary disposal project shall file with the executive director a plan detailing the method by which the city, town, county or private agency will comply with the provisions of this Part 1 of Division IV. The executive director shall review each plan submitted and may reject, suggest modification, or approve the proposed plan. The executive director shall aid in the development of plans for compliance with the provisions of said part. The executive director shall make available to each city, town, county and private agency appropriate forms for the submission of plans and may hold hearings for the purpose of implementing the provisions of said part.

455B.81 Tax levy. The board of supervisors of any county may, in lieu of the levy authorized by Section 332.32, annually levy a tax not to exceed one-fourth mill on all taxable property in the county outside the incorporated limits of any city or town for the purpose of planning a sanitary disposal project or of paying the interest and principal of bonds issued pursuant to the provisions of Section 346.23 as they become due. The levy authorized by this section shall be the only mill levy that the board of supervisors may authorize for the purposes of this section, notwithstanding the provisions of Section 346.11 or any other provision of law.

455B.82 Dumping - where prohibited.

1. Commencing July 1, 1975, it shall be unlawful for any private agency or public agency to dump or deposit or permit the dumping or depositing of any solid waste at any place other than a sanitary disposal project approved by the executive director. This section shall not prohibit a private agency or public agency from dumping or depositing solid waste resulting from its own residential, farming, manufacturing, mining or commercial activities on land owned or leased by it if such action does not violate any statute of this state or rules promulgated by the commission or local boards of health, or local ordinances, or rules issued by the air quality commission or water quality commission of the department. A violation of this subsection shall be a misdemeanor.*

*Punishment, see 687.7

2. The executive director may issue any order necessary to secure compliance with or prevent a violation of the provisions of this Part 1 of Division IV of the rules promulgated pursuant thereto. The attorney general shall, on request of the department, institute any legal proceedings necessary in obtaining compliance with an order of the commission or the executive director or prosecuting any person for a violation of the provisions of said part or rules issued pursuant thereto.

455B.83 Appeal from order. Any person aggrieved by an order of the commission or the executive director may appeal the same by filing a written notice of appeal with the executive director within thirty days of the issuance of the order. The executive director shall schedule a hearing for the purpose of hearing the arguments of the aggrieved person within thirty days of the filing of the notice of appeal. The hearing may be held before the commission or its designee. A complete record shall be made of the proceedings. The executive director shall issue the findings in writing to the aggrieved person within thirty days of the conclusion of such hearing. If such person is not satisfied with the findings of the commission, he may appeal such findings to the district court of the county wherein the acts in issue occurred. Such appeal shall be made within thirty days of the issuance of the findings of the commission and a copy of the same shall be filed with the commission. The court upon the filing of such appeal shall hear the appeal in equity.

455B.84 Modification of rules. Any rule adopted or order issued under Chapter 406 of prior Codes by the commissioner of public health shall remain effective until modified or rescinded by action of the solid waste disposal commission unless such rule is inconsistent or contrary to this Part 1 of Division IV.

Part II
RADIOACTIVE WASTE

455B.85	Definitions.
455B.86	Policy.
455B.87	Rules for transporting.
455B.88	Waste disposal site.
455B.89	Duty of executive director.
455B.90	Notice to violators.
455B.91	Emergency action.
455B.92	Appeal.
455B.93	Injunction.
455B.94	Penalty.

455B.85 Definitions. As used in this Part 2 of Division IV, unless the context otherwise requires:

1. "Radiation" means any ionizing radiation including, but not limited to, high-speed electrons, neutrons, protons and other nuclear particles, but not sound waves.
2. "Radioactive material" means any solid, liquid, or gaseous material which emits radiation spontaneously.
3. "Nuclear waste disposal site" means all facilities and appurtenances including all real and personal property connected with such facilities which are acquired, leased, purchased, constructed, reconstructed, equipped, improved, extended, maintained, or operated to facilitate the final disposition of radioactive waste without creating a significant hazard to the public health or safety, and which are approved by the executive director.
4. "Commission" means solid waste disposal commission of the department.

455B.86 Policy. The department shall be the agency of the state to establish policy for the transportation, storage, handling, and disposal of radioactive material for the purpose of protecting the public health and safety.

455B.87 Rules for transporting. The commission shall provide, by rule, for the proper methods of transporting, storage, and handling of radioactive material except that the provisions of this section shall not apply to the transportation, handling, or storage of radioactive material by licensed physicians and surgeons or licensed osteopathic physicians and surgeons within the scope of their practice or by qualified employees of licensed hospitals within the scope of their duties. In adopting such rules, the commission shall consider the methods and techniques used by the United States atomic energy commission and radiation control agencies of other states for the regulation of the transporting, handling, and storage of radioactive material. The commission shall also consult with the department of public safety in the development of rules for the transporting of radioactive material on the public roads of this state. All rules adopted by the commission under this section shall be subject to the provisions of Chapter 17A and Section 455B.7, subsection 3.

455B.88 Waste disposal site. The commission may approve or prohibit the establishment and operation of a nuclear waste disposal site in this state by a private person. In determining whether to grant or deny a license to establish and operate a nuclear waste disposal site, the commission shall consider the need for a nuclear waste disposal site and the existing physical conditions, topography, soils and geology, climate, transportation, and land use at the proposed site. If the commission decides to issue a license to establish and operate a nuclear waste disposal site, it shall establish, by rule, standards and procedures for the safe operation and maintenance of the proposed site. The commission shall also require the licensee to provide a sufficient surety bond or other financial commitment to insure the perpetual maintenance and monitoring of the nuclear waste disposal site.

All rules adopted by the commission under this section shall be subject to the provisions of Chapter 17A and Section 455B.7, subsection 3.

455B.89 Duty of executive director. The executive director:

1. Shall enforce any rules adopted under the provisions of this Part 2 of Division IV and furnish a copy of such rules to each applicant for any license required under said part.
2. May license any person transporting, handling, or storing any radioactive material under rules adopted by the commission.
3. May require the maintenance of records relating to the receipt, storage, transfer, or disposal of radioactive material.
4. May inspect any nuclear waste disposal site or other facilities relating to the transportation, storage and handling of radioactive materials. The executive director may enter at any reasonable time upon any private or public property for the purpose of determining whether or not a radiation hazard exists, or whether there is compliance with, or violation of, any provisions of this Part 2 of Division IV or any rules adopted under said part.
5. May issue, modify, or revoke orders in accordance with the provisions of this Part 2 of Division IV or the rules adopted under said part.
6. May require the submission of plans and specifications for the design, construction, maintenance, and monitoring of nuclear waste disposal sites for review and appraisal.

455B.90 Notice to violators. If the executive director determines that there are reasonable grounds to believe a violation of this Part 2 of Division IV or of the rules issued under said part has occurred, he shall give written notice by certified mail to the alleged violator specifying the alleged violations involved and specifying a period of time in which to eliminate the violation. If the alleged violator fails to comply within such specified time, the executive director shall schedule a hearing and give written notice to the alleged violator by certified mail. In connection with the hearings, the executive director may issue subpoenas requiring the attendance of witnesses and the production of records pertinent to such hearing. On the basis of the findings, the executive director shall issue a final order which shall be forwarded to the alleged violator by certified mail.

455B.91 Emergency action. Whenever the executive director finds that an emergency exists requiring immediate action to protect the public health and safety, he may, without notice or hearing, issue an emergency order reciting that an emergency exists and requiring that such action be taken as he deems necessary to meet the emergency. The order may be issued orally to the person whose operation constitutes the emergency by the executive director and confirmed by a copy of such order to be sent by certified mail within twenty-four hours after the issuance of the oral order. The emergency order shall be effective immediately. Any person receiving an emergency order may request a hearing before the commission within thirty days following the receipt of the order. The commission shall schedule a hearing within fourteen days after receipt of the request for a hearing and give written notice to the alleged violator by certified mail. The commission may also schedule a hearing in the absence of a request by the alleged violator. On the basis of the findings, the commission shall issue a final order which shall be forwarded to the alleged violator by certified mail.

The executive director may, if an emergency exists, impound or order the impounding of any radioactive material in the possession of any person who is not equipped to observe, or fails to observe, the provisions of this Part 2 of Division IV or any rules adopted under said part.

455B.92 Appeal. An appeal may be taken from any final order of the commission to the district court of the county in which the alleged violation was committed or such final order was entered. Notice of appeal from a final order shall be served upon the executive director by certified mail. Failure to serve the notice of appeal within thirty days after receipt of the final order shall operate as a waiver of the right to appeal. A final order by the commission shall not be stayed by an appeal except by order of the district court after hearing for good cause shown by the alleged violator. The hearing on appeal shall be tried as a suit in equity. The court may receive additional testimony and evidence and may affirm, modify, or reverse the final order of the commission.

455B.93 Injunction. Whenever, in the judgment of the executive director, any person has engaged in or is about to engage in any acts or practices which constitute or will constitute a violation of the provisions of this Part 2 of Division IV or any rule or order promulgated under said part, he may request the attorney general to make application in the name of the state to the district court of the county in which such acts or practices may be performed, for an order enjoining such acts or practices notwithstanding the existence or pursuit of any other remedy, and the attorney general shall make such application.

455B.94 Penalty. Any person who violates any provisions of this Part 2 of Division IV or rules adopted under said part, or any order of the commission or executive director issued pursuant to said part, shall be punished by a fine of not more than five hundred dollars or by imprisonment not to exceed six months or punished by both such fine and imprisonment and, in addition, he may be enjoined from continuing such violation. Each day of continued violation after notice that a violation is being committed shall constitute a separate violation.

Part III
DEBRIS

- 455B.95 Definitions.
455B.96 Executive director's duties.
455B.97 Litter.
455B.98 Penalty.
455B.99 Other powers not affected.

455B.95 Definitions. As used in this Part 3 of Division IV, unless the context otherwise requires:

1. "Litter" means any garbage, rubbish, trash, refuse, waste materials, or debris.
2. "Discard" means to place, cause to be placed, throw, deposit, or drop.
3. "Commission" means the solid waste disposal commission of the department.

455B.96 Executive director's duties. The executive director, at the direction of the commission, shall establish programs to encourage the active support of business, industry and the general public for litter control.

The executive director, at the direction of the commission, shall co-ordinate and encourage the co-operation of state and local public agencies in the administration of this Part 3 of Division IV.

455B.97 Litter. No person shall discard any litter onto or in any water or land of this state, except that nothing in this section shall be construed to affect the authorized collection and discarding of such litter in or on areas or receptacles provided for such purpose.

When litter is discarded from a motor vehicle, the driver of the motor vehicle shall be responsible for the act in any case where doubt exists as to which occupant of the motor vehicle actually discarded the litter.

455B.98 Penalty. Any person violating the provisions of Section 455B.97, shall be guilty of a misdemeanor and, upon conviction, shall be subject to a fine of not less than fifteen dollars nor more than one hundred dollars or be imprisoned in the county jail not to exceed thirty days. The court, in lieu of or in addition to any other sentence imposed, may direct and supervise a labor of litter gathering.

455B.99 Other powers not affected. The powers, duties and functions vested in the commission under the provisions of this Division IV shall not be construed to affect the powers, duties and functions vested in the department under any other provisions of this chapter or the Code.

APPENDIX II

RULES FOR SOLID WASTE DISPOSAL

IOWA SOLID WASTE DISPOSAL COMMISSION

DEPARTMENT OF ENVIRONMENTAL QUALITY

Pursuant to the authority of Section 455B.78, of the Code of Iowa 1973, the rules appearing in the 1973 I.D.R. pages 295 through 301 relating to sanitary disposal projects are amended as follows.

1. Rescind Section 25.1(1) and insert the following section in lieu thereof:

25.1(1) "Commission" means the Iowa Solid Waste Disposal Commission.

2. Rescind Section 25.1(3) and insert the following section in lieu thereof:

25.1(3) "Department" means the Iowa State Department of Environmental Quality.

3. Rescind Section 26.1(455B) and insert the following section in lieu thereof:

26.1(455B) Permit required. A new sanitary disposal project shall not be established after the affective date of these rules until a permit is issued by the Executive Director.

4. Rescind Section 26.2(455B) and insert the following section in lieu thereof:

26.2(455B) Details of plan proposals. Cities, towns, counties and private agencies which are operating or planning to operate a sanitary disposal project shall file with the Executive Director a plan on a form provided by the Executive Director detailing the method proposed to comply with the requirements of Chapter 455B, of the Code of Iowa 1973. The plan shall be filed with the Executive Director prior to January 1, 1973.

5. Rescind Section 26.3(3) and insert the following section in lieu thereof:

26.3(3) The Commission, after public hearing, may grant such exceptions from these rules as it may consider proper and in the public interest.

6. Delete the words "Commissioner of Public Health" from section 26.4(3) and insert the word "Department" in lieu thereof.

7. Delete the words "Iowa Air Pollution Control Commission" from Subsection 27.1(4) i(1) and insert the words "Iowa Air Quality Commission" in lieu thereof.
8. Delete the word "Commissioner" from Subsection 27.1(4) i(20) and insert the words "Executive Director" in lieu thereof.
9. Delete the words "Iowa Air Pollution Control Commission" from Subsection 28.3(455B) and insert the words "Iowa Air Quality Commission" in lieu thereof.
10. Rescind Section 28.1(455B) and insert the following section in lieu thereof:

28.1(455B) Any city, town, county or private agency using or planning to use incineration as a method of sanitary disposal must obtain a permit from the Executive Director.
11. Rescind Section 28.2(455B) and insert the following section in lieu thereof:

28.2(455B) Any city, town, county or private agency operating or planning to operate an incinerator to dispose of toxic or hazardous waste must apply to the Executive Director for a special permit for this purpose.
12. Rescind Section 29.1(455B) and insert the following section in lieu thereof:

29.1(455B) Any city, town, county or private agency disposing or planning to dispose of solid waste by composting must obtain a permit from the Executive Director prior to operation, installation or alteration of such facilities.
13. Rescind Section 30.1(455B) and insert the following section in lieu thereof:

30.1(455B) Any city, town, county or private agency processing or planning to process said waste by recycling must obtain a permit from the Executive Director prior to operation, installation or modification of such facilities.
14. Delete the word "Commissioner" from Rules 28.4(4)o, 28.4(4)q, 28.4(4)s, 29.2(9), 30.2(4) and 31.1(455B) and insert the words "Executive Director" in lieu thereof.

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TITLE IV SOLID WASTE DISPOSAL CHAPTER 25 DEFINITIONS

25.1(455B) Definitions. For the purpose of these rules, the following terms shall have the meaning indicated in this chapter. The definitions set out in section 406.2 [Code 1971] shall be considered to be incorporated verbatim in these rules.

25.1(1) "*Commissioner*" means the Iowa commissioner of public health.

25.1(2) "*Composting*" means the controlled, biological decomposition of selected solid organic waste materials under aerobic conditions resulting in an innocuous final product.

25.1(3) "*Department*" means the Iowa state department of health.

25.1(4) "*Flood plain*" means the area adjoining a river or stream which has been or may be hereafter covered by flood water.

25.1(5) "*Garbage*" means all solid and semisolid, putrescible animal and vegetable wastes resulting from the handling, preparing, cooking, storing, serving and consuming of food or of material intended for use as food, and all offal, excluding useful industrial byproducts, and shall include all such substances from all public and private establishments and from all residences.

25.1(6) "*High water table*" is the position of the water table which occurs in the spring in years of normal or above normal precipitation.

25.1(7) "*Incineration*" means the processing and burning of waste for the purpose of volume and weight reduction in facilities designed for such use.

25.1(8) "*Intermediate solid waste disposal*" means the site, facility, operating procedures and maintenance thereof for the preliminary and incomplete disposal of solid waste, including but not limited to transfer, open burning, incomplete land disposal, incineration, composting, reduction, shredding or compression.

25.1(9) "*Land pollution*" means the presence in or on the land of any solid waste in such quantity, of such nature and for such duration and under such condition as would affect injuriously any waters of the state, cause air pollution or create a nuisance.

25.1(10) "*Open burning*" means any burning of combustible materials where the products of combustion are emitted into the open air without passing through a chimney or stack.

25.1(11) "*Open dumping*" means the depositing of solid wastes on the surface of the ground or into a body or stream of water.

25.1(12) "*Private agency*" is defined in section 28E.2.

25.1(13) "*Public agency*" is defined in section 28E.2.

25.1(14) "*Recycling*" means the reutilization of natural resources and man-made products.

25.1(15) "*Refuse*" means putrescible and nonputrescible wastes, including but not limited to garbage, rubbish, ashes, incinerator ash, incinerator residues, street cleanings, market and industrial solid wastes and sewage treatment wastes in dry or semisolid form.

25.1(16) "*Refuse collection service*" means a publicly or privately operated agency, business or service engaged in the collecting and transporting of solid waste for disposal purposes.

25.1(17) "*Rubbish*" means nonputrescible solid waste consisting of combustible and non-combustible wastes, such as ashes, paper, cardboard, tin cans, yard clippings, wood, glass, bedding, crockery or litter of any kind.

25.1(18) "*Rubble*" means stone, brick or similar inorganic material.

25.1(19) "*Salvageable material*" means discarded material no longer of value for its original purpose but which has value if reclaimed.

25.1(20) "*Sanitary disposal*" means a method of treating solid waste so that it does not produce a hazard to the public health or safety or create a nuisance.

25.1(21) "*Sanitary disposal project*" is defined in 406.2 [Code 1971].

25.1(22) "*Sanitary landfill*" means a method of disposing of refuse on land by utilizing the principles of engineering to confine the refuse to the smallest practical area, to reduce it to the smallest practical volume and to cover it with a layer of earth at the conclusion of each day's operation or at such more frequent intervals as may be necessary so that no nuisance or hazard to the public health is created.

25.1(23) "*Shoreland*" means land within 300 feet of the high water mark of any natural or artificial, publicly or privately owned lake or any impoundment of water used as a source of public water supply.

25.1(24) "*Site*" means any location, place or tract of land used for collection, storage, conversion, utilization, incineration or burial of solid wastes.

25.1(25) "*Solid waste*" is defined in section 406.2 [Code 1971].

25.1(26) "*Solid waste collection*" means the gathering of solid waste from public and private places.

25.1(27) "*Solid waste storage*" means the holding of solid waste pending intermediate or final disposal.

25.1(28) "*Solid waste transportation*" means the conveying of solid waste from one place

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to another by means of vehicle, rail car, water vessel, conveyor or other means.

25.1(29) *"Toxic and hazardous wastes"* means waste materials, including but not limited to poisons, pesticides, herbicides, acids, caustics, pathological wastes, flammable or explosive materials and similar harmful wastes which require special handling and which must be disposed of in such a manner as to conserve the environment and protect the public health and safety.

25.1(30) *"Transfer station"* means a fixed or mobile intermediate solid waste disposal facility for transferring loads of solid waste, with or without reduction of volume, to another transportation unit.

These rules are intended to implement section 406.5 [Code 1971].

[Filed September 1, 1971]

CHAPTER 26 GENERAL CONDITIONS, PROHIBITIONS AND REQUIREMENTS

26.1(455B) **Permit required.** A new sanitary disposal project shall not be established after the effective date of these rules until a permit is issued by the commissioner.

26.2(455B) **Details of plan proposals.** Cities, towns and counties and private agencies which are operating or planning to operate a sanitary disposal project shall file with the commissioner a plan on a form provided by the commissioner detailing the method proposed to comply with the requirements of chapter 455B. The plan shall be filed with the commissioner prior to November 12, 1972.

26.3(455B) **General conditions.**

26.3(1) A public or private agency dumping or depositing solid waste resulting from its own residential, agricultural, manufacturing, mining, commercial or other activities on land owned or leased by it must operate and maintain such sites so that they create no public health hazard or nuisance.

26.3(2) All solid waste shall be stored, collected, transported, utilized, processed, reclaimed or disposed of in a manner consistent with requirements of these rules.

26.3(3) The commissioner has the authority to grant such exceptions from these rules as he may consider proper and in the public interest.

26.4(455B) **General prohibitions.**

26.4(1) Open dumping is prohibited except for rubble.

26.4(2) No public or private agency shall dump or deposit solid waste on any land not its own unless the site is leased or covered by satisfactory use agreements conveying to the agency such privilege.

26.4(3) No disposal of toxic or hazardous wastes shall be made unless explicit instructions are first obtained from the commissioner of public health.

26.4(4) Radioactive materials shall not be disposed of in a sanitary disposal project. Luminous timepieces are exempt.

26.4(5) No permit shall be granted if the location of the site or operation of the facility does not conform to all applicable federal and state laws and local ordinances and regulations.

26.5(455B) **Storage, collection and transportation of solid waste.**

26.5(1) *Solid waste storage.* Public agencies shall be responsible for regulation of storage of all solid waste accumulated at a premise, business establishment or industry within their jurisdiction. Local regulations should include specifications for storage containers and provision for the adequate labeling of toxic and hazardous wastes. These regulations shall be adequate to prevent the creation of public health hazards and nuisances.

26.5(2) *Collection and transportation.*

a. Where a refuse collection service is a part of a sanitary disposal project, the sanitary disposal project shall be responsible for the collection and transportation of all solid waste accumulated at services premises, business establishments and industries, in a manner free of hazard or nuisance, to an authorized solid waste disposal site or facility. Public or private agencies not a part of a sanitary disposal project which collect and transport solid waste to a sanitary disposal project shall be answerable for an operation free of hazard or nuisance to the public agency responsible for the sanitary disposal project.

b. Vehicles or containers used for the collection and transportation of garbage and similar putrescible wastes or refuse containing such materials shall be leakproof, durable and of easily cleanable construction. They shall be cleaned to prevent nuisances, pollution or insect breeding and shall be maintained in good repair.

c. Vehicles or containers used for the collection and transportation of any solid waste shall be loaded and moved in such a manner that the contents will not fall, leak or spill therefrom, and shall be covered to prevent blowing or loss of material. Where spillage does occur, the material shall be picked up immediately by the collector or transporter and returned to the vehicle or container and the area properly cleaned.

d. Vehicles and containers used for the collection and transportation of toxic and hazardous wastes shall be so constructed that they can be loaded, moved and unloaded in a manner that does not create a danger to public health or safety and in compliance with these rules and federal and state laws and local ordinances and regulations.

These rules are intended to implement 406.5 [Code 1971].

[Filed September 1, 1971]

CHAPTER 27

SANITARY LANDFILL

27.1(455B) Plan for sanitary landfill. A plan proposing the use of a sanitary landfill shall be prepared by or under the direct supervision of an engineer in conformity with chapter 114, [Code 1971] and submitted in triplicate and shall include the following supporting documents:

27.1(1) A map or aerial photograph of the area showing land use and zoning within one-half mile of the solid waste disposal site. The map or aerial photograph shall be of sufficient scale to show all homes, buildings, lakes, ponds, water-courses, wetlands, dry runs, rock outcroppings, roads and other applicable details including topography and drainage patterns. Wells shall be identified on the map or aerial photograph. A U.S.C. and G.S. or U.S.G.S. Bench Mark should be indicated, if available, and a north arrow drawn. The boundaries of the solid waste disposal site will be indicated on the map or aerial photograph.

27.1(2) A plot drawing of the site and the immediately adjacent area showing dimensions, topography with appropriate contour intervals, drainage patterns, known existing drainage tiles, locations where any geologic samples were taken, all water wells with their uses and present and planned pertinent features including but not limited to roads, fencing and cover stockpiles. The scheme of development including any excavation, trenching and fill should be shown progressively with time and the monitoring methods to be used to insure compliance with the scheme shall be described. Cross-sectional drawings or other suitable evidence shall be provided showing progressively with time the original and proposed elevation of excavating, trenching, and fill. The plot drawing shall be in appropriate scale.

27.1(3) An ultimate land use proposal, including intermediate use stages, with time schedules indicating the total and complete land use. Final elevation slope and permanent drainage structures of the completed landfill shall be included. Any supporting drawings to the ultimate land use proposal shall be in appropriate scale.

27.1(4) A report shall accompany the drawings. It shall include data of the following types:

a. A stratigraphic section beneath the proposed site from the surface to and including at least five feet of the uppermost bedrock unit or to a depth of at least 50 feet of penetration into a homogenous till unit. The lithologies shall be described in terms of grain size distribution including the gravel, sand, silt and clay classes and Atterberg limits shall be determined.

Samples of sediments and rock units shall be collected at five-foot intervals or when different lithologies are encountered, whichever is most frequent. Samples shall be identified by location and

depth. The name of the person classifying the sediments shall be indicated. One complete set of unaltered sack samples shall be submitted with the application.

A drilling location plan and drilling log shall be submitted for each series of samples.

b. Source and characteristics of cover material if not included in the information submitted in 27.1(4) "a", above.

c. Area of site in acres.

d. Owner of site.

e. An organization chart, personnel manning table and table of equipment for the management, operation and maintenance of the site shall be prepared and submitted. A contingency plan covering equipment breakdown shall be included.

f. Information indicating that the proposed landfill is:

(1) So situated as to obviate any significant, predictable lateral leakage of leachates from the landfill to shallow unconsolidated aquifers that are in actual use or are deemed to be of potential use as a local water resource.

(2) So situated that the base of the proposed landfill is at least five feet above the high water table.

(3) Not in significant hydrologic subsurface or surface connection with standing or flowing surface water.

(4) Not situated in an unconsolidated sequence that will permit more than 0.04 cubic foot of liquid per day per square foot of area downward leakage into a subcropping bedrock or alluvial aquifer if such an aquifer is present beneath or adjacent to the proposed site. The potential downward leakage will be evaluated by means of the generalized Darcy's Law $Q = PIA$ where:

Q = feet³ of liquid/day/foot² of area of the interface,

P = coefficient of permeability of the unconsolidated confining unit,

I = the hydrologic gradient derived by the function: Piezometric head in the unconsolidated sediments minus the piezometric head in the bedrock aquifer divided by the thickness of the confining unit of lowest permeability nominated to retard downward migration of liquids or derived by other acceptable engineering practices, and

A = one square foot of area at the base of the landfill.

(5) Outside a flood plain or shoreland, unless proper engineering and sealing of the site will render it acceptable and prior approval of the Iowa natural resources council and where necessary the U.S. Corps of Engineers is obtained.

(6) At least 1000 feet from any existing well that draws water for human or livestock consumption from an aquifer that underlies and is in hydrologic connection with the landfill. This is meant to include any bedrock aquifer that is the uppermost subcropping bedrock unit beneath the unconsolidated sequence in which the landfill is to be developed.

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(7) At least one mile from a municipal well or a municipal water intake from a body of static water or one mile upstream or 1000 feet downstream from a riverine intake, unless hydrologic conditions are such that a greater distance is required or a lesser distance can be permitted without an adverse effect on the water supply.

(8) Beyond 500 feet at the time of commencement of construction of the sanitary landfill from the nearest edge of the right of way of any state highway or beyond 1000 feet from the nearest edge of the right of way of an interstate or federal primary highway, unless the site is screened by natural objects, planting, fences or other appropriate means so as not to be visible from the highway.

(9) Beyond 500 feet from an occupied dwelling unless the site is screened by natural objects, planting, fences or by other appropriate means.

g. Should conditions in violation of 27.1(4) "f" (1), (2), (3), (4) or (5) exist, the original plan must be engineered to effect equal protection to the water resources.

h. Information indicating compliance with chapter 2 of these rules.

i. Intended operating procedures shall include at least the following conditions:

(1) Open burning shall be prohibited except when permitted by the rules of the Iowa air pollution control commission. Any burning to be conducted by the sanitary disposal project shall be at a location separate and distinct from the sanitary landfill.

(2) Solid waste shall not be deposited in such a manner that material or leaching therefrom may cause pollution of ground or surface waters.

(3) Dumping of solid waste shall be confined to as small an area as practicable, and the area shall be surrounded with appropriate barriers to confine possible wind-blown material to the area. At the conclusion of each day of operation, any wind-blown material strewn beyond the confines of the area should be collected and returned to the area.

(4) The deposited refuse shall be uniformly distributed and compacted in layers with a height and operating face slope which will permit thorough compaction into cells.

(5) Refuse shall be compacted as densely as practicable and covered after each day of operation with a compacted layer of at least six inches of earth.

(6) Provision shall be made to have cover material available for winter operations.

(7) Each site shall be graded and provided with drainage facilities to minimize the flow of surface water onto and into the fill and to prevent erosion and the collection of standing water.

(8) A minimum distance of 20 feet shall be maintained between the disposal operation and the adjacent property line unless suitable arrangements have been made with the owner of the abutting property.

(9) Effective state-approved means shall be taken to control flies and other insects, rodents or vermin.

(10) The approach road to the disposal site shall be of all-weather construction and maintained in good condition.

(11) Equipment shall be available to control accidental fires in the sanitary landfill. Arrangements shall also be made with the local fire protection agency to acquire their services immediately when needed.

(12) Telephone or other adequate facilities shall be available for emergency purposes.

(13) Sanitary facilities and shelter shall be available on site.

(14) Scavenging shall be prohibited. Any salvaging to be permitted at the site must be described.

(15) An attendant shall be on duty at the site at all times while it is open for public use.

(16) The site shall be fenced to control access and a gate shall be provided at the entrance to the site and kept locked when an attendant is not on duty.

(17) A permanent sign shall be posted at the site entrance identifying the operation, showing the permit number of the site, indicating the hours and days the site is open, specifying the penalty for unauthorized dumping, identifying the location, if any, on the site, which has been designated for disposal of toxic and hazardous wastes and providing other pertinent information.

(18) Within one month after final termination of the site or a major part thereof, the area shall be covered with at least two feet of compacted earth material, free from cracks and extrusions of refuse, adequately grated to allow surface water runoff.

(19) The finished surface of the filled area shall be repaired as required, covered with soil, and seeded with native grasses or other suitable vegetation immediately upon completion or promptly in the spring on areas terminated during winter conditions. If necessary, seeded slopes shall be covered with straw or similar material to prevent erosion.

(20) Prior to completion of a sanitary landfill site, the commissioner shall be notified in order that a site investigation may be conducted before earth-moving equipment is removed from the property.

[Filed September 1, 1971]

CHAPTER 28

COMBUSTION IN AN INCINERATOR

28.1(455B) Any sanitary disposal project using or planning to use incineration must obtain a permit.

28.2(455B) Any sanitary disposal project incinerating or planning to incinerate toxic and hazardous waste must apply for a special permit for this purpose.

28.3(455B) All incinerators must be approved as to design and operated in conformity with emission limitations imposed by rules of the Iowa air pollution control commission.

28.4(455B) Application for permit will be submitted to the department on the appropriate forms and shall include the following supporting documents:

28.4(1) A map or aerial photograph in triplicate indicating land use and zoning within one-half mile of the facility. The map or aerial photograph shall be of adequate scale to show all homes, buildings, roads and other applicable details. Boundaries of the incineration site will be clearly indicated on the map or aerial photograph.

28.4(2) Sets of plans and specifications in triplicate prepared by a registered engineer in conformity with chapter 114 [Code 1971] clearly indicating the construction existing or to be undertaken. These plans and specifications shall include the location, type and height of all buildings within 500 feet of the existing or proposed installation.

28.4(3) An engineering report to include furnace design criteria, existing or expected performance data, the present and future population and extent of the area to be served by the incinerator, the characteristics, quantities and sources of the solid waste to be processed.

28.4(4) Intended operating procedures including plans for the disposal of incinerator residue, the present or expected amount of such residue and plans for the emergency disposal of solid waste in the event of major breakdown of the incinerator plant.

- a. The owner of the site and of the plant.
- b. A personnel manning table for the actual operation and maintenance of the plant.
- c. Information indicating compliance with chapter 26 of these rules.
- d. Location, equipment, operation and maintenance of the incinerator plant shall be such that it produces only minimal interference with other activities in the area.
- e. Availability of shelter and sanitary facilities for plant personnel.
- f. A permanent sign at the site entrance identifying the operation, showing the permit number of the plant and indicating the hours and days that the plant is open for public use. Access to the plant shall be permitted only during those times when authorized personnel are on duty.
- g. Confinement of all incoming solid waste to the unloading area. A minimum holding bin capacity of one and one-half times the 24-hour capacity of the incinerator shall be provided.
- h. Provision of dust control facilities in the unloading and charging area.
- i. An incinerator scale shall be available to permit proper charging weights during operation and to provide data for a record as to the total

weight of material incinerated and resulting residue for planning and management purposes.

j. Supply of potable water for use of plant personnel and suitable source of water for spraying, heating, quenching, cooling and fire fighting.

k. Availability of adequate fire-fighting equipment, as recommended by the state fire marshal, in the storage and charging area and elsewhere as needed. Arrangements shall be made with the local fire protection agency to provide fire-fighting forces in an emergency.

l. Telephone or other adequate facilities shall be available for emergency purposes.

m. Cleaning of storage and charging areas after each day's operation or more often as may be required. The entire plant shall be maintained in a clean and sanitary condition.

n. Provision of necessary safety features at the charging openings and for all equipment throughout the plant.

o. Maintenance of the temperature in the combustion chambers during normal operation at a minimum of 1500°F. to produce a satisfactory residue and an odor-free operation. A continuously recording pyrometer shall be installed to maintain records of combustion chamber temperatures. These records shall be available for inspection by the commissioner upon request.

p. Proper deposit at an approved sanitary landfill site of all residue removed from the incinerator plant in a manner which will prevent the creation of nuisances, pollution and public health hazards.

q. Provision of timely notice to the commissioner prior to the initial operation of a newly constructed plant to permit inspection of the plant both prior to and during the performance tests. Performance tests of newly constructed plants are required. A report detailing the results of such performance tests shall be prepared by the design engineer of the sanitary disposal project and shall be submitted to the commissioner with copies of all supporting data documents.

r. Existing incinerators which do not meet the requirements of this section shall be reconstructed to comply or an alternate method of sanitary waste disposal must be adopted.

s. Such additional data and information as may be required by the commissioner.

These rules are intended to implement section 406.5 [Code 1971].

[Filed September 1, 1971]

CHAPTER 29 COMPOSTING

29.1(455B) Any sanitary disposal project disposing of solid waste by composting must obtain a permit granted by the commissioner prior to operation, installation or alteration of its facilities.

29.2(455B) Application for a permit to operate, install or alter a composting facility shall be

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accompanied by the following supporting documents which shall be prepared by or under the direct supervision of an engineer in conformity with chapter 114 [Code 1971]:

29.2(1) Maps or aerial photographs in triplicate indicating land use and zoning within one-half mile of the proposed facility. The map or aerial photograph shall be of adequate scale to show all homes, buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads and other applicable details and shall indicate the general topography of the area with appropriate contours and drainage patterns. Wells and locations where geologic samples were taken will be identified on the map or aerial photograph.

29.2(2) Plans and specifications in triplicate clearly indicating the layout and construction proposed.

29.2(3) Detailed information on geological formations underlying the actual or proposed site. Such information shall be determined by geologic samples or other appropriate means to a depth of at least 20 feet, or to the high water table.

29.2(4) An engineering report describing the proposed facility, the present and future population and the area to be served by the composting unit and the characteristics, quantities and sources of solid waste to be processed.

29.2(5) Intended operating procedures, including the proposed method and the use or disposition that is to be made of the processed material.

29.2(6) Owner of the site and plant.

29.2(7) An organization chart, personnel manning table and table of equipment for the management, operation and maintenance of the site shall be prepared and submitted. A contingency plan covering equipment breakdown shall be included.

29.2(8) Information indicating compliance with chapter 2 of these rules.

29.2(9) Such additional data and information as may be required by the commissioner.

29.3(455B) Any composting operation must be conducted in a manner which minimizes pollution, public health hazards and creation of nuisances.

29.4(455B) Materials resulting from composting or similar processes and offered for sale shall contain no pathogenic organisms, shall not reheat upon standing, shall be innocuous and shall contain no sharp particles which would cause injury to persons handling the compost. Sale shall be in compliance with all applicable federal and state laws and local ordinances and regulations.

29.5(455B) Noncompostible materials removed during processing shall be handled in a manner which will not produce pollution or nuisance and shall be disposed of by another satisfactory method as provided in these rules.

These rules are intended to implement section 406.5 [Code 1971].

[Filed September 1, 1971]

CHAPTER 30

RECYCLING

30.1(455B) Any sanitary disposal project processing solid waste by recycling must obtain a permit from the commissioner.

30.2(455B) Application to construct and operate an installation for the processing of solid waste to reclaim salvageable materials for recycling must be accompanied by the following supporting documents prepared by or under the direct supervision of an engineer in conformity with chapter 114 [Code 1971]:

30.2(1) A map or aerial photograph showing land use and zoning within one-half mile of such installation. The map or aerial photograph shall be of sufficient scale to show all homes, buildings, roads and other applicable details. The boundaries of the recycling site shall be clearly indicated on the map or aerial photograph.

30.2(2) Detailed engineering drawings of all buildings, conveyor lines, machines, intermediate holding area, loading and unloading docks, transfer points and such other appurtenances to the facility, and in addition, lines of flow for all waste and salvaged material handled by the facility must be included. Access and egress roads must be shown.

30.2(3) Complete description of the method of handling reclaimed salvageable materials, the disposition of such materials, the transfer points to which they will be moved, capacities of such points and frequency of interchange must be shown.

30.2(4) Such additional data and information as may be required by the commissioner.

30.3(455B) Material which cannot be recycled shall be handled in a manner which will not produce pollution or nuisance and shall be disposed of by another satisfactory method as provided in these rules.

These rules are intended to implement section 406.5 [Code 1971].

[Filed September 1, 1971]

CHAPTER 31

OTHER METHODS OF WASTE HANDLING, PROCESSING AND DISPOSAL

31.1(455B) Before a site or facility for any other method of solid waste handling, processing and disposal, including transfer stations not otherwise provided for in these rules, is constructed, an application accompanied by plans in triplicate, specifications, design data, ultimate land use and

proposed operating procedures and such additional data and information as may be required shall be submitted to the commissioner for review before a permit can be issued. All such information shall be prepared by or under the direct supervision of an engineer in conformity with chapter 114 [Code 1971].

This rule is intended to implement section 406.5 [Code 1971].

[Filed September 1, 1971]

APPENDIX III
LOCAL PLANNING INFORMATION SUMMARY
July 30, 1973

PLANNING INFORMATION SUMMARY
PLAN APPROVED JULY 30, 1973

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Adair	2,252	private individual	\$18,540/year rural property tax resident, business fees	40 acres for 20 years	7 open and covered dumps	9,799	Adair County Sanitary Dis- posal Comm.	
Boone		private individual				26,172	Boone County Sanitary Land- fill Comm.	Feb.1970 site approved
Bremer	11,000	municipal individual	\$43,600/year rural property tax, gate fees, resident fees	80 acres for 20 years	former county landfills and dumps closed, municip.closing their dumps	15,810	Bremer County Board of Supervisors	Aug.1971 Bremer County Sanitary Landfill opened
Buchanan	10,525	private municipal individual	\$51,500/year rural property tax resident, business fees	80 acres for 20 years		21,746	Buchanan Co. Sanitary Land- fill Comm.	
Buena Vista		private municipal	\$49,200/year			18,707	Buena Vista County Land- fill Comm.	
Butler	7,180	private individual	\$10,000/year taxes gate fees			16,953	Wendell Abkes, contractor	

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Calhoun	16,287	private individual		45 acres for 10 years	7	14,292	Calhoun County Landfill Authority	Jan.1973 - 2 site system. Jan.1975 - alter system(2 or 1 sites, 1980-1990 one site plan.
Carroll	10,200	private individual	\$183,000/year taxes, fees		12 open dumps	23,548	Carroll County Solid Waste Management Comm.	
Cass	12,333	private	\$43,400/year rural property tax, resident, business fees	60 acres for 20 years	2 public 1 private	17,007	Cass County Environmental Control Agency	
Cherokee	16,807	private	\$100,000/year financing method undecided	47 acres for 20 years	3 modified landfills 1 open dump	17,269	Cherokee Solid Waste Comm.	
Clay	16,107	municipal private individual	\$51,700 to \$61,100/year taxes, gate fees resident fees	190 acres for 20 years	4 open dumps 3 landfills	18,464	Clay County Solid Waste Committee	
Clinton	63,000	municipal private	\$117,000 to \$170,000/yr. financing meth. undecided	350 acres for 20 years	33	53,102	Clinton Co. Solid Waste Agency	

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Crawford	16,506	private individual	\$23,540/year taxes, fees	60 acres for 10 years	12	19,116	Crawford County Landfill Advis- ory Comm.	Sept. 1971 prelim. stage begun June 1972 Gully fill stage
Dallas		private	\$85,275/year taxes, fees	10 acres for 10 years		11,737	South Dallas Co. Sanitary Landfill Agency	4/73 form an agency & submit plan to DEQ
Davis	6,200			16 acres for 20 years		8,207		
Delaware	13,367	municipal private	\$51,500/year taxes fees	80 acres for 30 years	10	18,251	Delaware Co. Sanitary Land- fill Comm.	Jan. 1973 file a plan for collection & dis- posal
Dickinson	16,110	municipal private individual	\$59,200/year financing meth- od undecided	200 acres for 20 years	4 open dumps 2 landfills	12,565	Dickinson County Sanitary Land- fill Comm.	
Emmet	11,279	municipal private individual	\$63,000/year financing meth. undecided	160 acres for 30 years	3 dumps 1 landfill	14,009	Regional Solid Waste Manage- ment Agency	Oct. 1973-A Dec. 1973-B June 1974-C Dec. 1974-D June 1975-E

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Fayette	22,500	municipal private individual	\$400,000/year taxes	present site will accommo- date for 15 years more	3	26,898	Fayette County Sanitary Land- fill	April 1, 1971 Co. sanitary land- fill opened
Floyd/ Mitchell	19,357	municipal private individual	initial costs \$63,000		7	30,520	Floyd-Mitchell Solid Waste Management Agcy	
Franklin	8,599	private individual			5	12,185	Franklin Co. Landfill Comm.	
Fremont	8,100	private individual	\$39,620/year rural taxation resident fees gate fees	40 acres for 10 years	4	8,434	Fremont Co. Sanitary Land- fill Comm.	June 1974 submit plans Oct. 1974 begin oper. of landfill Oct. 1974 close existing dumps
Harrison		private		64 acres			Harrison Co. Sanitary Land- fill Comm.	County has had sanitary land- fill program for more than a year
Howard		private	bag costs	use Ironwood Disposal Site in Minn. for 20 years			Howard Co. Sanitary Dis- posal Comm.	

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Ida		private individual		50 acres for 13.5 years		9,190	Ida Co. Board of Supervisors	present site has been in operation 3 years.
Iowa	10,000	municipal private individual	\$118,800/year rural taxes resident fees gate fees	20-40 acres for 20 years		\$15,565		
Jackson	11,430	municipal private individual		3 acres/year		20,825	Jackson Co. Sanitary Land- fill Steering Committee	
Jasper	22,700	individual municipal private	\$69,208/year		14	35,425	Jasper Co. Solid Waste Comm.	
Jefferson	18,509	municipal private individual	taxation gate fees	1.77 acres/yr.	14	16,226	Jefferson Co. Service Agency	
Jones	13,292	private individual	\$36,096	32.55 acres for 15 years	9	19,868	Jones Co. Landfill Comm.	

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Keokuk	11,950	municipal private individual	\$125,288/year financing method undecided	20 acres for 10 years		13,943		
Lee	102,361			119 acres for 15 years	3 landfills 1 dump	42,996		
Louisa	8,950	municipal private individual	\$113,840/year financing method undecided	20 acres for 10 years		11,585	Louisa County Solid Waste Management Association	
Lyon	7,500	private individual	\$31,037/year rural property tax, resident fees gate fees	20 acres for 20 years		13,340	Lyon County Solid Waste Disposal Board	
Madison	5,800	private individual	\$31,250/year financing method undecided	20 acres for 20 years	1 sanitary landfill 7 dumps	10,591	Madison County Sanitary Land- fill Agency	
Marion	31,200	municipal private individual	\$41,187/year ru- ral property taxes; resident fees	86 acres for 15 yrs.			Marion County Sanitary Dis- posal System	March 1970 first landfill opened August 1970 second landfill opened

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Marshall	20,000	private		7.2 acres/yr	5	41,067	Marshall Co. Landfill Commission	
MIDAS CO. Webster Pocahontas Hamilton Humboldt	68,000			200 acres for 20 years		99,457	Mid-Iowa Develop- ment Association Regional Plan- ning Comm.	
Monona		municipal private individual	monthly fees		8	7,072	Monona Co. Board of Supervisors	Oct.1,1970 Monona Co. Landfill in operation
Montgomery	12,100	private individual	taxes		4	12,781	Montgomery Co. Solid Waste Dis- posal Agency	
Page	31,200	private individual		80 acres for 20 years				plan to use Shenandoah land- fill until 1975
Plymouth	17,750 to 25,000	municipal private individual	\$47,839/year to \$102,018/year	41 acres for 20 years to 58.5 acres for 15 yrs.	9	24,316	Plymouth Co. Solid Waste Agcy	

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Pottawattamie	207,000	municipal private		40 acres for 20 yrs.	7	515,800	Pottawattamie Co. Sanitary Landfill Agcy.	
Poweshiek	13,800	municipal private	\$58,500 fees	40 acres			Poweshiek Co. Sanitary Land- fill Commission	June 1973 tem- porary facilities operating. July 1974 all fac. in full operation
Sac	12,789	private municipal individual	\$30,566/year			15,573	Sac Co. Solid Waste Agency	July 1973 submit engineering report Spring 1974 full- time operation
Scott	131,500	municipal private	\$942,115/year taxes user fees	60 acres for 6 to 13 yrs.	6	141,000	Scott County Landfill Comm.	Oct. 172 Scott Co. landfill to open. 2 other sites to open in future.
Taylor	5,169	private	\$18,860/year gate fees resident fees			7,118	City of Bedford	Oct. 1973 approve site April 1974 submit plans. June 1974 begin devel. Oct. 74 be in opera- tion
Van Buren	6,214	individuals private	\$19,200/year to \$26,000/year fi- nancing method undecided	20 acres for 20 years	5 open dumps dumping along county road	8,643	Van Buren Regional Plan- ning Board	

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Wapello	47,143	private	taxes	55 acres for 20 years			Ottumwa Health Department	
Winneshiek	15,900	private individual	\$41,392/year rural taxes resident taxes	60 acres for 20 years	10	21,651	Winneshiek Co. Area Solid Waste Agency	
Woodbury (excluding Sioux City)	12,500	municipal private individual	\$29,710/year taxes resident fees	45 acres for 20 years	11	17,127	Woodbury Co. Solid Waste Commission	
City of Sioux City Woodbury Co.	184,691	municipal private				86,000	City of Sioux City	plan has been in operation
Worth, Winnebago, Hancock	60,700	private	gate fees city taxes fees			32,872	Central Disposal Systems, Inc.	Nov.1972 site in operation
Wright	5,500	private individual	taxes gate fees				Wright Co. Solid Waste Agency	

FOOTNOTES

- A. Oct. 1973, determine site and method.
- B. Dec. 1973, submit detailed plans.
- C. June 1974, begin construction.
- D. Dec. 1974, complete construction.
- E. June 1975, fully operational.

PLANNING INFORMATION SUMMARY
REVIEW NOT COMPLETED JULY 30, 1973

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Audubon (rural only)	703	individual				5,083		Feb.1972 Comm. formed.
Benton	17,000	municipal private individual	\$245,506/year taxes resident fees gate fees	40 acres for 10 years	5	22,885	Benton County Regional Service Agency	5/73 form Agency & submit plan 10/74 begin opera- tion of landfill 5/75 close existdump
Black Hawk		private municipal					Black Hawk Co. Solid Waste Management Comm.	
Cerro Gordo			\$114,205/year taxes	320 acres.. for 20 years		56,060	Cerro Gordo Co. Area Solid Waste Agency	
Chickasaw		municipal private individual			all county dumps closed		Chickasaw Co. Landfill Comm.	currently using sanitary landfil operated by Hall Disposal, Inc.
Clarke	6,000	private individual	taxes resident fees gate fees			8,030	Clarke Co. Sanitary Landfill Commission	

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Des Moines	58,300	private municipal individual	\$90,000/year taxes gate fees			47,000	Des Moines County Planning Comm.	Sept.1970 Land- fill opened
Des Moines Metro. Area	562,000	municipal private	gate fees \$1,374,846/ year, resi- dent fees	240 acres and 282 acres for 20 years (2 sites)	10	288,000	Des Moines Metro Area Solid Waste Agency	1968 study com- pleted. Nov.1970 collection and disposal service begun.
Dubuque	248,190	private				87,786		
Greene		private individual						
Henry						17,217	Henry Co. Land- fill Commission	
Johnson	75,000	municipal private			4	72,242		June 1972 Land- fill open at Iowa City

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Kossuth		private individual	\$25,000/year gate fees	40 to 60 acres for 20 years	3	22,000	Kossuth Co. Board of Super- visors	Dec.1970 present site in operation
Mills	8,700	private individual	rural prop- erty, busi- ness fees	present site (49 acres) good for 8 years, 80 to 100 acres for next 20 years		14,000	Mills Co. Sanitary Land- fill Association	
Northwest Iowa Region	59,000	private municipal individual	\$66,100/year financing method unde- cided.	200 acres for 18 years	35	67,413	Northwest Iowa Regional Plan- ning Commission	
Palo Alto	9,100		\$67,660/year to \$75,250/ year	113 acres for 20 years	6	13,289		
(East) Pottawat- tamie	25,390	municipal private	\$128,761/year	63 acres for 20 years	7	15,747	Pottawattamie Co. Landfill Agency No.1	
Ringgold/ Decatur	8,500	private		80 to 160 acres for 20 years			Ringgold-Decatur Solid Waste Commission	

County	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Shelby	6,240	private	\$71,000/year	45 acres for 20 years	9 open dumps	15,540	Shelby Co. Solid Waste Management Commission	
Tama	7,300	individual private	\$51,200/year taxes	80 acres for 20 years	10	20,147	Tama Co. Solid Waste Disposal Commission	
Union	10,600	private	taxes	40 to 50 acres for 20 years		9,950	Union Co. Solid Waste Manage- ment Comm.	
Upper Explorer- land	70,200	private individual municipal		217.8 acres for 20 years		95,672	Upper Explore- land Regional Planning Comm.	

PLANNING INFORMATION SUMMARY
REVIEW NOT COMPLETED JULY 30, 1973

City or Town	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Akron Plymouth Co.	240	municipal 90% individual 10%	monthly fees	10 acres	closed		Town of Akron	July 1971 using landfill
Alburnett Linn Co.		private			1		Town of Alburnett	
Ames Story Co.	90,000	municipal 21% private 60%				all of Story County	City of Ames	complete study by end of 1972
Aplington Butler Co.	608	private			closed		Town of Aplington	fall 1971 closed city landfill use site south of Allison, Ia.
Brayton Audubon Co.		private			use G & W Land-fill Atlantic, Iowa	161	Town of Brayton	
Bristow Butler Co.		private			closed	300	Town of Bristow	Oct. 1971 use Butler Center Landfill

City or Town	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Cambridge Story Co.				will use Ames Sanitary Land-fill		661		Nov.12,1972 city dump closed
Cascade Dubuque Co.	872	municipal	taxes gate fees	5 acres for 20 years		1,744	Town of Cascade	1971 present site converted to Sanitary landfill
Chelsea Tama Co.		private						1970 site used as landfill by several communities
Clarks-ville Butler Co.		private			closed			may join county plan
Clutier Tama Co.	not known					600	Town of Clutier	Dec.1971 Commence using landfill; use Tama Co. Land fill when it is open.
Collins Story Co.						404		use Marshalltown site until Jan.75 then join Story Co project

City or Town	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Colo Story Co.	180	private 90% not collected 10%			none (presently disposing at Marshall-town)			use Ames facilities by July 1975
Coralville Johnson Co.		municipal 50% private 40%	\$22,270/year	25 to 40 acres for 20 years	none	7,000	Director of Pub. Works, City of Coralville	
Dexter Dallas Co.		private			none (use Warren Madison Co. Land-fill)		Town of Dexter	
Dike Grundy Co.	384	private 100%						
Ely Linn Co.		municipal 40% private 60%			1			
Greene Butler Co.		private			closed			Oct. 72 contracted with Eliminator Refuse Company

City or Town	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Guthrie Center Guthrie Co.		private	user fees county funds	80 acres for 20 years	1			
Iowa City Johnson Co.	75,000	private 52.5% municipal 47.5%						
Mc Intire Mitchell Co.		private			closed	234	Town of McIntire	Nov.1971 use Hall Disposal, Inc. San- itary Landfill in Nashua, Iowa
Mount Vernon Linn Co.		private 100%				3,060	City of Mount Vernon	7/74 decide to use Linn Co. Landfill or contract with CE-CO at private site
New Hampton Chickasaw Co.								April 1973 use Hall Disposal Inc site
New Hartford Butler Co.		private 100%			closed		City Clerk and Council	1970 use Butler Center Landfill

City or Town	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Perry Dallas Co.		municipal		80 acres for 20 years			City of Perry	
Prairie City Jasper Co.		municipal				1,250		use site of Des Moines Metro. Solid Waste Agcy.
Thayer Union Co.		private 100%			none (use Union County Sanitary Land- fill)	94		
Tripoli Bremer Co.					1		Tripoli-Readlyn Sanitation Agcy.	landfill has been in opera- tion
Walker Linn Co.								use Toddville Landfill until 1975
Whittemore Kossuth Co.					1	658		July 75 start us- ing Kossuth Co. Landfill

City or Town	Quantities Generated (tons/year)	Collection and Transportation	Financing	Land Requirements	Present Dumps	Population	Administration	Important Dates
Woodbine Harrison Co.	780	private 95%	resident fees gate fees	11 acres for 20 years	only the landfill	1,349	Town of Woodbine	Oct.1970 present site in operation
Woodward Dallas Co.	780	private 90%		80 acres	1		Town of Woodward	Presently using Perry Landfill

APPENDIX IV
EXAMPLE 28E AGREEMENT

INTERGOVERNMENTAL AGREEMENT CREATING
THE _____ COUNTY SOLID WASTE
MANAGEMENT COMMISSION
(AMENDING AND SUPERSEDING PRIOR JOINT AGREEMENT)

This agreement is made and entered into as of _____, 197_,
by, between and among the Town of _____, Iowa, the Town of _____,
Iowa, the Town of _____, Iowa, the Town of _____, Iowa, the Town
of _____, Iowa, the Town of _____, Iowa, the Town of _____,
Iowa, the Town of _____, Iowa, the Town of _____, Iowa, the Town
of _____, Iowa, the Town of _____, Iowa, the Town of _____,
Iowa, the Town of _____, Iowa, and the Town of _____, Iowa, (all
parties being hereinafter called the "Municipalities").

WITNESSETH:

ARTICLE I.

CREATION OF THE _____ COUNTY SOLID
WASTE MANAGEMENT COMMISSION

Pursuant to the provisions of Chapter 28E, Code of Iowa, 1973, the
Municipalities hereby form and create, as a public body corporate and
politic and separate legal entity, the _____ County Solid Waste Manage-
ment Commission (hereinafter called the "Commission").

ARTICLE II.

DURATION

Section 1. Duration. The duration of this Commission shall be per-
petual, unless terminated or dissolved as hereinafter provided.

ARTICLE III.

PURPOSE

Section 1. Purpose. The purpose of the agreement is to create a

joint _____ County Solid Waste Management Commission. This Commission is established for the purpose of developing, operating and maintaining Solid Waste Facilities for and on behalf of the units of government who are parties to this agreement. In furtherance of said purpose, this Commission is intended, and is hereby declared to be, a combination of units of government organized for purposes of providing solid waste management in _____ County, Iowa.

ARTICLE IV.
POWERS AND DUTIES

Section 1.¹ Powers. The Commission shall be a public body corporate and politic and separate legal entity exercising public and essential governmental functions to provide for the public health, safety and welfare and shall have the following powers:

- (a) To adopt and have a common seal and to alter the same at pleasure.
- (b) To sue and be sued.
- (c) To acquire, hold, use and dispose of the reserves derived from the operation of its facilities and other moneys of the Commission.

¹ alternate section 1 of Article IV:

Section 1. Powers. The Commission will have the power to do any and all things necessary to carry out the requirements of Chapter 455B of the 1973 Code of Iowa, such powers to include but not limited to the power and authority to buy, sell, lease, mortgage, encumber any and all real estate needed and any and all personal property to include machinery and equipment.

(d) To acquire, hold, use and dispose of other personal property for the purposes of the Commission.

(e) To acquire by purchase, gift, lease or otherwise, real property and easements therein, necessary or useful and convenient for the operation of the Commission, subject to all liens thereon, if any, and to hold and use the same, and to dispose of property so acquired no longer necessary for the purposes of this Commission.

(f) To accept gifts or grants of real or personal property, money, material, labor or supplies for the purpose of the Commission, and to make and perform such agreements and contracts as may be necessary or convenient in connection with the procuring, acceptance or disposition of such gifts or grants.

(g) To make and enforce by-laws or rules and regulations for the management and operation of its business and affairs and for the use, maintenance and operation of its facilities and any other of its properties, and to annul the same.

(h) To do and perform any acts and things authorized by Chapters 28E and 28F, Code of Iowa, 197 , and by this Agreement, under, through or by means of its officers, agents and employees, or by contracts with any person.

(i) To enter into any and all contracts, execute any and all instruments, and do and perform any and all acts or things necessary, convenient or desirable for the purposes of the Commission or to carry out any powers expressly given by this Agreement.

(j) To cause the disposal of solid waste material originating within each Municipality pursuant to the contract between the Commis-

sion and the Municipality pertinent thereto.

(k) To fix, establish and maintain such rates, tolls, fees, rentals or other charges for the services and facilities of the Commission sufficient to pay at all times the cost of maintaining, repairing and operating said facilities, to pay the principal of and interest on bonds of the Commission then outstanding, to provide for replacements, depreciation and necessary extensions and enlargements and to provide a margin of safety.

(l) To make or cause to be made studies and surveys necessary or useful and convenient to carrying out the functions of the Commission.

(m) To contract with and compensate consultants for professional services including but not limited to architects, engineers, planners, lawyers, accountants, rate specialists, and all others found necessary or useful and convenient to the stated purposes of the Commission.

(n) To prepare and recommend to member Municipalities local ordinances governing refuse collection transportation and disposal, regulation of private collection haulers, land use regulations, sanitation, burning of private or public wastes, incineration standards and other such regulations as may from time to time be required.

(o) To exercise such powers relative to the efficient disposal of solid waste as are available under then existing laws to each member Municipality as is necessary or useful and convenient to carrying out the functions of the Commission within such member Municipality, as such functions are defined by the service contract en-

tered by and between that member Municipality and the Commission.

(p) To provide for a system of budgeting, accounting, auditing and reporting of all Commission funds and transactions, for a depository, and for the bonding of employees.

(q) To consult with representatives of Federal, State and local agencies, departments and their officers and employees and to contract with such agencies and departments.

(r) To exercise such other powers as are available under then existing law to each member Municipality as is necessary or useful and convenient to carrying out the functions of the Commission within such member Municipality, as such functions are defined by the service contract entered by and between that member Municipality and the Commission.

(s) To borrow money, make and issue negotiable bonds, certificates, bond anticipation notes, refunding bonds and notes and to secure the payment of such bonds, certificates, refunding bonds and notes or any part thereof by a pledge of any or all of the Commission's net revenue and any other funds which it has a right to, or may hereafter have the right to pledge for such purposes.

(t) To provide in the proceeding authorizing such obligations for remedies upon default in the payment of principal and interest on any such obligations including but not limited to, the appointment of a trustee to represent the holders of such obligations in default and the appointment of a receiver of the Commission's property, such trustee and such receiver to have the powers and duties provided for in the proceeding authorizing such obligations.

(u) To receive funds from each member Municipality as payment

for providing disposal of domestic solid waste from residents therein; provided, however, that in lieu of receiving such funds from member Municipalities and at the discretion of the Commission, it shall have the power to bill individuals resident in such Municipalities directly for payment for disposal services and to receive such payments, for and on behalf of Municipalities.

(v) To hire employees, fix their compensation, benefits, personnel rules and regulations, and terminate their employment.

(w) To borrow money and accept grants, contributions or loans from, and to enter into contracts, leases, or other transactions with municipal, county, State or the Federal Government.

Section 2. Duties of the Commission. a) The duties of this Commission shall be to provide members with satisfactory solid waste disposal facilities and to maintain a cooperative relationship with individual governmental units. b) The duties shall also include adopting by-laws for the operation of the Commission and providing member governments with copies of the official by-laws.

ARTICLE V FINANCING

Section 1. In the performance of its duties, the Commission may cooperate with, contract with, and accept and expend funds from federal, state or local agencies, public or semi-public, or private individuals or corporations, and shall carry out such cooperative undertakings and contracts.

Section 2. The Commission shall enter into necessary contracts and make expenditures for the purchase, lease or rent of required land, fa-

cilities, equipment and supplies necessary to carry out the purpose of this agreement. The Commission shall also have the power to sublet or rent any property owned or leased and the income therefrom shall accrue to the _____ County Solid Waste Management Commission.

Section 3. The expenditures of the Commission, exclusive of gifts, grants or contract receipts, shall be appropriated or provided to the Commission by the member governing bodies.

Section 4. The Commission shall prepare a budget based on calendar years for the operation of the Commission to be adopted in June of the year preceding the budget year.

Section 5. The Commission shall request each Municipality and/or county unit to provide in its budget for its share of the Commission budget.

Section 6. The Commission, for the purpose of allocating portion of the Commission budget for the retirement of the original bonds and interest for each Municipality, shall adopt a percentage formula for the Commission membership based upon population as shown by the official 1970 federal census, and, shall adopt a similar formula for any subsequent bonds, interest and improvements based upon the latest official federal census for each Municipality.

The Commission, for the purpose of allocating the portion of the budget attributable to each Municipality for operational costs, shall adopt a percentage formula, as follows:

(__ %) percent for the City of _____ ;

(__ %) percent for the rural area (outside any corporate

limits);

(%) percent for the remaining incorporated cities and towns, divided pursuant to the percentage of population each city or town bears to the total population of all incorporated cities and towns who are Commission members, (except) by the latest official federal census then in effect for each Municipality.

Upon completion of any subsequent official federal census, for any Municipality, the aforesaid percentages shall be altered to account for the increase or decrease in the population of any of the three groups as that increase or decrease bears to the base population year, 1970, and the aforesaid base percentages, it being understood that the budget for operational costs has been and will continue to be weighted for the purpose of this Agreement to account for the proximity of the landfill site and the degree of use contemplated.

Section 7. The share of each budget from each Municipality shall be due and payable to the Treasurer of the Commission in quarterly payments to be made within 30 days after the beginning of the quarter of the Commission's budget year.

Section 8. Special appropriations shall be made by the parties hereto for funding the operation of the Commission prior to the establishment of the budget cycle.

Section 9. Any special or budgetary appropriation adopted by the Commission shall be a membership requirement of each and every Municipality. The failure of a Municipality to pay over to the Commission the allotted share of a Commission budget may be considered a momentary

withdrawal of that Municipality and a default of this Agreement.

ARTICLE VI
ORGANIZATION

(a). The governing body of the Solid Waste Management Commission shall be designated as the Commission (hereinafter called the "Commission"), whose membership shall consist of an elected representative of the governing body of each participating governmental jurisdiction, or his designated substitute, which substitute shall be a member of and approved by the body he represents. Each member of the Board shall have one vote for each one thousand population or fraction thereof, residing in the governmental jurisdiction he represents. Such population shall be ascertained from the most recent federal census or special federal federal census, which ever is latest, for that jurisdiction. Where the governmental jurisdiction is a county, such population shall be that of the unincorporated portion of the county.

(b). There shall be one class of membership in the Commission, which shall be a full membership and each member Municipality shall designate by resolution of its governing body its membership within the Commission.

(c). A quorum of the Commission shall consist of a majority of the entire Board membership, regardless of the number of votes held by each member present and also of a majority of the total number of votes of all members whether or not present.

(d). A majority vote of the Board or of the members of the Board when required by this Agreement as authorization for or as a prerequisite to any certain Board action shall mean such a majority or such a fraction

of the total votes represented by the representatives constituting the quorum of the Board at the meeting at which such action is considered.

(e). The Chairman and the Vice-Chairman of the Commission shall be elected by majority of Commission membership and shall serve for a term of one year, or until their respective successors in office are chosen. The incumbent in each said office may succeed himself; and annual elections shall be held.

(f). The Commission shall hold at least one meeting during each six months of the year on dates and at places which shall be determined by the Commission. Special meetings may be held at the call of the Chairman, Vice-Chairman or majority of the membership of the Commission.

(g). The Commission shall elect a five member executive board composed of members of the solid waste management commission which shall have and exercise such of the powers of the Commission, during the period of time between meetings of the Commission, as may be lawfully delegated, including without limitation conducting surveys and establishing and operating the solid waste disposal site. At all times ____ members of such executive board must be from the city of _____ and ____ members shall also be from the _____ County Board of Supervisors and ____ members shall be elected from the members of the Commission as members at large. The terms of this executive board shall be staggered with one member being replaced each year so that the terms of such board will be staggered from one year to five year terms thereafter and members of the executive board may succeed themselves. In the event that a member of the board is replaced by his municipality as a representative to the Commission, his successor as such representative shall succeed to his mem-

bership on the executive board for the balance of his term. The board members for the initial term will draw ballots to determine their initial term in office. The actions of this executive board shall be subject to call of the executive board. Neither the Commission nor the executive board shall have the authority to regulate the manner and method of pickup of any solid waste in any municipality nor shall they have the authority to bind any municipality as to charges for pick-up and delivery unless said municipality shall agree to such regulations by written consent. The executive board may hire or appoint a Director (subject to the approval of the Commission) and such other supervisory, clerical and other personnel as are necessary to carry out the functions of the Commission and the executive board. The executive board shall fix their compensation and benefits, and shall approve all personnel rules and regulations pertaining thereto.

(h). The Director shall be the Secretary and Treasurer of the Commission and shall have the authority, duties and obligations normally associated with these offices, including but not limited to the receipt and disbursement of funds and the preparation and submission of quarterly and annual financial reports to the commission.

(i). The executive board may employ legal counsel, who may be a paid employee of one of the members, and who may receive compensation set by the Commission for the performance of his duties.

(j). The Commission shall cause this Agreement to be filed with the Secretary of State and with the County Recorder of each county in which a member is located and shall notify such officers of the name of any municipality withdrawing from or joining the Commission.

(k). Additional municipalities may be added to the membership of the Commission upon a majority vote of all the members of the Commission.

(l). In the event an additional municipality shall apply for membership in the Commission and said application is considered and approved by the then existing Board, then said municipality may be added to the membership, provided, however, that said additional municipality as a condition of membership agrees to abide by the terms of this agreement as set out herein and possess legal power and authority to do so.

ARTICLE VII
TECHNICAL COOPERATION FROM
MUNICIPALITIES AND COUNTIES

1. The municipalities agree to respond to reasonable requests of its consultants or employees for the purposes of this Agreement, and to assure that engineers, architects and consultants hired by the Municipalities release materials, data and other pertinent items paid for by public funds to the Commission staff to aid in the efficient and effective accomplishment of such purposes.

ARTICLE VIII
NOT FOR PROFIT

It is expressly understood that the Commission is to be operated not for profit and no profit or dividend will inure to the benefit of any person.

ARTICLE IX
SUSPENSION OF VOTING RIGHTS AND SERVICES

During a period of delinquency by a Municipality in the payment to the Commission of its share of a budget and before such delinquency is determined a voluntary withdrawal, such Municipality shall not be enti-

tled to the services of the Commission, nor shall the Municipality be entitled to vote on matters coming before the Board, unless such delinquency shall be waived for voting purposes by a majority vote of the remaining members of the Commission.

ARTICLE X

1. In the event of the withdrawal of any Municipality from the Commission, such withdrawing Municipality shall be entitled to a pro-rata share of the value of the real and personal property of the Commission. Such share shall be calculated as the percentage of the then value of said property based on the ratio of the funds the withdrawing Municipality has provided to the Commission during the period of this Agreement to the sum of all funds provided by all Municipalities. Funds for the payment of the pro-rata share of such property value shall be provided for in the quickest possible manner so as not to threaten the financial solvency of the Commission. A withdrawing Municipality may waive its pro-rata share of any real or personal property in the possession of the Commission. Any such withdrawal must be preceded by a one (1) year formal notice to the Commission.

2. The Commission shall be completely dissolved and this Agreement terminated only upon the affirmative majority vote of the Commission which vote shall specify the date and time such dissolution shall be effective which date and time may be amended at or before such time but not thereafter by the same affirmative majority vote of the Commission. The Commission shall not be dissolved at any time that revenue bonds or obligations issued in anticipation of revenue bonds have been issued and are outstanding. The date of dissolution shall not be set within

the one year interval immediately following the date of the majority vote to dissolve the Commission.

3. In the event of such a vote to completely dissolve the Commission, any real or personal property shall be sold prior to the date and time aforesaid and the proceeds prorated among the Municipalities at the time of dissolution on the basis of the sum of the portions of the budget for the Commission provided by them for and during the period of this Agreement; provided, however, that the proceeds of the sale of land acquired by the Commission shall be divided among the member municipalities in proportion to their respective original contributions towards acquisition of said land. The current budget year shall be used as one of the years in the calculation if all Municipalities have made their proper contributions hereunder and the balance remaining of the funds collected during the current year shall be refunded to the contributors before determining the value of the assets of the Commission at dissolution, and said year shall not be used in calculating the shares.

4. Anything herein to the contrary notwithstanding, Municipalities may not withdraw or in any way terminate, amend, or modify in any manner to the detriment of bondholders this agreement or any contract for the services of the Commission if revenue bonds or obligations issued in anticipation if the issuance of revenue bonds have been issued and are outstanding. Any revenue bonds for the payment and discharge of which, upon maturity or upon redemption prior to maturity, provision has been made through the setting apart in a reserve fund or special trust account created pursuant to this Agreement to insure the payment thereof, of moneys sufficient for that purpose or through the irrevocable segregation for

that purpose in a sinking fund or other fund or trust account or moneys sufficient therefor, shall be deemed to be no longer outstanding and unpaid within the meaning of any provision of this Agreement.

ARTICLE XI
MANNER OF ACQUIRING AND HOLDING PROPERTY

1. The Commission may lease, purchase, or acquire by any other means, from members or from any other source, such real and personal property as is required for the operation of the Commission and the carrying out of the purpose of this Agreement. The Commission shall maintain title to all such property in the name of the Commission and shall require the Secretary to maintain an inventory. Property, materials and services shall be acquired or disposed of only upon a majority vote of a quorum attending a duly called Commission meeting, provided, however, that by the same vote the Commission may authorize the Director to expend such funds as the Commission may direct for other authorized purposes of the Commission.

All conveyances of real property owned or held in the name of the Commission shall be made and executed on behalf of the Commission shall be made and executed on behalf of the Commission by the Chairman or Vice-Chairman and Secretary of the Commission.

ARTICLE XII
AMENDMENT OF AGREEMENT

Amendment of the Agreement shall be by the same procedures by which the Agreement was approved and executed; provided, however, that this Agreement shall never be amended in any way so as to adversely affect the interests of the holder or holders of any bonds or other obligations of the Commission.

ARTICLE XIII
ARBITRATION OF DISPUTES BETWEEN MEMBERS

Except as may be otherwise required by law, the Municipalities and each of them agree that any disputes which may arise between them and the Commission, involving interpretation of this Agreement, shall be resolved whenever possible by voluntary negotiation in which the Director may act as mediator if Commission interests do not appear to be present in the issues presented or represent the Commission if the issues do affect the Commission. Such negotiations shall however not be obligatory and may if commenced be terminated at any time by withdrawal of any part to the conflict. At any time from and after it first appears that such a conflict exists, including the period of voluntary negotiation proposes, any party to such a conflict or whose interests as a party hereto are affected by a conflict may commence the processes of arbitration hereinafter described in the following manner:

(a). Any one or more Municipalities interested in such a dispute or the Commission shall serve notice in the manner of service of an original notice under the Iowa Rules of Civil Procedure upon all the adverse parties above referred to stating as simply as possible the points of difference between the parties and stating an intent to initiate such arbitration procedures and the completed service of such notice shall be deemed initiation of such procedures. Within 10 days thereafter the serving parties (acting jointly if more than one), jointly and severally identified as "Part X: for the purposes of this Article, and the adverse

parties served (acting jointly if more than one), jointly and severally identified as "Party Y" for the purposes of this Article, shall each select one arbitrator and shall notify the other in writing of the name and address of the arbitrator selected. The arbitrators so selected shall within ten (10) days after being notified of their selection select a third arbitrator, and after doing so shall in writing forthwith notify Party X and Party Y of the name and address of such third arbitrator. The three arbitrators selected as aforesaid shall immediately proceed to determine the points of difference stated in such notice, and the conclusion of said arbitrators, or a majority of them shall be reduced to writing and submitted in writing to Party X and Party Y, and the determination so made shall be binding upon Party X and Party Y and shall form the basis for future guidance of the parties on the issues so resolved.

(b). Provided in paragraph (a) above, another interested party may apply to Secretary of State of the State of Iowa, for the appointment of the second arbitrator, which application shall be upon ten (10) days' written notice to the other party, and such Secretary of State shall appoint the second arbitrator. If the two arbitrators fail within ten (10) days after their appointment to agree upon the third arbitrator either of the parties, acting jointly, if multiple in composition, or either of the arbitrators, whether appointed by the parties or by such Secretary of State, may make application to such Secretary of State upon not less than three (3) days' notice in writing to each of the parties and to the other arbitrators and upon such application such Secretary of State shall appoint the third arbitrator. The active contestants within each party shall pay the expense of its arbitrator and the expense incurred by it, and the compensation of the third arbitrator shall be divided equally as between such parties and

paid by the active contestants in each as above provided. In the event that said arbitrators, or a majority of them shall then fail to agree upon a determination of the issues within ten (10) days after the matter is submitted to them, said arbitrators shall be discharged and the proceedings had before them shall be abandoned, and if, for the foregoing or any other reason, any arbitration shall fail, a new arbitration shall be immediately commenced by naming new arbitrators as above provided, and the parties shall so continue until a determination shall be made by such arbitrators or a majority of them as herein provided.

(c). Any vacancy on said board of arbitrators may be filled by the party originally entitled to select such arbitrator, and if such party neglects to do so for a period of ten (10) days after such vacancy, said shall be filled, on three (3) days' written notice by the party not in default, by an appointment by such Secretary of State.

(d). No arbitrator shall be appointed hereunder unless he be entirely disinterested, no related to either of the parties or to another arbitrator, and all arbitrators must be of good repute, known integrity, well informed concerning municipal corporations and the rules and regulations to which they are legally subject and must have been resident freeholder of the State of Iowa, for at least five (5) years prior to appointment.

(e). It is the intent of this Agreement that recourse to arbitration as prescribed shall be a mandatory condition precedent to the invocation of a judicial remedy or judgment and that such arbitration shall be final and binding upon the parties thereto save and except only as the law requires.

(f). For the purposes of this Article all the Municipalities which are parties to this Agreement shall be named in either Party X or Party Y. Party Y shall consist of parties known to be adverse to Party X and all other Municipalities, party to this Agreement, which have not officially declared their intent to join in the initiation of such arbitration proceedings upon the date of delivery of the initiating notice for service. Selection of an arbitrator by Party Y shall, however, be by the real parties in interest to the issues presented.

ARTICLE XIV

That a certain Agreement to cooperate heretofore entered into by certain of the undersigned creating _____ County Solid Waste Management Commission is hereby amended and superseded by this Agreement.

This Agreement may be executed by one or more of the parties hereto separately in any number of counterparts, each of which when so executed and delivered shall be part of the original, and such counterparts together shall constitute one and the same instrument.

In testimony whereof, said Municipalities have caused this Agreement to be executed on their behalf by their duly authorized officers, and the same to be attested by their Clerks or Auditor, and the Corporate seal of said Municipalities to be affixed hereto all as of the day and year first above written.

(SEAL)

County of _____, Iowa

By _____
Chairman

Attest:

Auditor

(SEAL)

Town of _____, Iowa

By _____
Mayor

Attest

Clerk

APPENDIX V
STATUS OF 28E AGREEMENTS FOR
SOLID WASTE
July 30, 1973

STATUS OF 28E AGREEMENTS
FOR SOLID WASTE

	<u>Participating</u>	<u>Non-Participating</u>
<u>Adair County:</u>	County Fontanelle Greenfield Orient Adair Menlo (located in Guthrie Co.) Casey (located in Guthrie Co.) Bridgewater	Stuart
<u>*Appanoose County:</u>	(Rathbun Regional Planning Commission) All of County Lucas County Wayne County Monroe County	
<u>Audubon County:</u>	Audubon Exira Kimballton Gray County	Brayton
<u>Benton County:</u>	County Atkins Blairstown Garrison Keystone Luzerne Mt. Auburn Newhall	Shellsburg Urbana Van Horne Walford Vinton Belle Plaine Norway
<u>Black Hawk County:</u>	All of County Cedar Falls Dunkerton Evansdale Gilbertville Hudson LaPorte Raymond	Waterloo County
<u>Boone County:</u>	Boone Beaver Fraser Luther Madrid Ogden Pilot Mound County	Boxholm Berkley

*Other than 28E

	<u>Participating</u>	<u>Non-Participating</u>
<u>Bremer County:</u>	Denver Frederika Plainfield Sumner Waverly County	Readlyn Tripoli Janesville
<u>Buchanan County:</u>	Aurora Brandon Fairbank Independence Jesup Lamont Quasqueton Rowley	Stanley Winthrop County Hazleton
<u>Buena Vista County:</u>	Alta Lakeside Marathon Newell Storm Lake Truesdale County	Linn Grove Sioux Rapids Albert City Rembrandt
<u>Calhoun County:</u>	Jolly Knieram Lake City Lohrville Manson Pomeroy Rinard Rockwell City	Yetter County Somers Farnhamville
<u>Carroll County:</u>	All of County Arcadia Breda Carroll Coon Rapids Dedham Glidden Halbur Lanesboro	Lidderdale Manning Ralston Templeton Willey County
<u>Cass County:</u>	Anita Dumberland Griswold Lewis Marne Massena	Wiota County Atlantic

	<u>Participating</u>	<u>Non-Participating</u>
<u>Cedar County:</u>	All of County Bennett Clarence Durant Lowden Mechanicsville Stanwood Tipton West Branch	County
<u>Cerro Gordo County:</u>	All of County Clear Lake Dougherty Mason City Meservey Plymouth Rock Falls Rockwell Swaledale	Thornton Ventura Fertile(located in Worth Co.) Hanlontown(located in Worth Co.) Manly(located in Worth Co.)
<u>Cherokee County:</u>	All of County Aurelia Cherokee Cleghorn Larrabee Marcus Meriden Quimby	Washta County
<u>Chickasaw County:</u>	All of County Alta Vista Bassett Fredericksburg Ionia Lawler Nashua New Hampton	North Washington County
<u>Clinton County:</u>	All of County Andover Calamus Camanche Charlotte Clinton Delmar DeWitt Goose Lake	Grand Mound Lost Nation Low Moor Toronto Welton Wheatland County

	<u>Participating</u>	<u>Non-Participating</u>
<u>Crawford County:</u>	All of County	Ricketts
	Arion	Schleswig
	Aspinwall	Vail
	Buck Grove	Westside
	Charter Oak	County
	Deloit	
	Denison	
	Dow City	
	Manilla	
<u>Dallas County (South):</u>	Adel	Bouton
	Earlham (located in Madison Co.)	Woodward County $\frac{1}{2}$
	Redfield	Dallas Center
	Van Meter	Dawson
	Waukee	DeSoto
	County $\frac{1}{2}$	Dexter
		Linden
		Minburn
		Perry
<u>Davis County:</u>	All of County	
	County	
	Bloomfield	
	Floris	
	Pulaski	
	Drakesville	
<u>Decatur County:</u>	All of County	VanWert
	Davis City	Weldon
	Decatur City	County
	Garden Grove	Ringgold County
	Grand River	
	Lamoni	
	Leon	
	LeRoy	
	Pleasanton	
<u>Delaware County:</u>	Colesburg	Ryan
	Delaware	County
	Delhi	Earlville
	Dundee	
	Hopkinton	
	Manchester	
	Masonville	
	Oneida	

	<u>Participating</u>	<u>Non-Participating</u>
<u>*Des Moines County:</u>	All of County Burlington Danville Mediapolis Middletown County	
<u>Dickinson County:</u>	All of County Arnolds Park Lake Park Milford Okoboji Old Town Orleans Spirit Lake Superior	Terril Wahpeton West Okoboji County
<u>Dubuque County:</u>	Balltown Bankston Centralia Dubuque Dyersville Epworth Farley Holy Cross	Luxemburg New Vienna Rickardsville Sageville Worthington County Asbury Cascade Peosta Sherrill
<u>*Emmet County:</u>	(Emmet County Planning Commission) All of County Armstrong Dolliver Estherville Gruver Ringstead Wallingford County	
<u>Fayette County:</u>	Clearmont Donnan Elgin Fayette Hawkeye Maynard Oelwein Randalia	Wadena Waucoma West Union County St. Lucas Arlington West Gate
<u>Floyd County:</u>	All of County Charles City Colwell Floyd	Marble Rock Rockford Rudd County Mitchell County

	<u>Participating</u>	<u>Non-Participating</u>
<u>Franklin County:</u>	Coultier Alexander Geneva Hampton Hansell Latimer Popejoy County	Oakland Sheffield
<u>Fremont County:</u>	County Sidney Hamburg Riverton Farragut Thurman Randolph	Imogene Tabor (joining Mills Co.)
<u>Greene County:</u>	Grand Junction Rippey Dana Churdan Scranton Jefferson	Paton
<u>Grundy County:</u>	Beaman Conrad Dike Grundy Center Holland Morrison Reinbeck Stout	Wellsburg County
<u>Hardin County:</u>	All of County Ackley Alden Buckeye Eldora Iowa Falls New Providence Hubbard Radcliffe	Owasa Steamboat Rock Union County

	<u>Participating</u>	<u>Non-Participating</u>
<u>Harrison County:</u>	Missouri Valley Pisgah Logan Magnolia Modale Persia Mondamin County	Dunlap Little Sioux Woodbine
<u>Henry County:</u>	All of County Mt. Pleasant Hillsboro Mt. Union New London Olds Rome Salem	Wayland County
<u>Howard County:</u>	All of County Chester Cresco Elma Lime Springs Protivin Riceville County	
<u>Humboldt County:</u>	Bode Bradgate Dakota City Gilmore City Humboldt Livermore Ottosen Rutland	Thor County Pioneer Renwick
<u>Ida County:</u>	All of County Arthur Battle Creek Galva Holstein Ida Grove County	
<u>Iowa County:</u>	Ladora Marengo Millersburg North English Parnell	Williamsburg Victor County Amana (East, South, West, Middle)

	<u>Participating</u>	<u>Non-Participating</u>
<u>Jackson County:</u>	All of County	Miles
	Andrew	Monmouth
	Baldwin	Preston
	Bellevue	Sabula
	Green Island	Spragueville
	Hurstville	Springbrook
	LaMotte	St. Donatus
	Maquoketa	County
<u>Jasper County:</u>	County	Reasnor
	Newton	Sully
	Baxter	Monroe (joining Marion Co.)
	Colfax	Valeria
	Kellogg	
	Lambs Grove	
	Lynnville	
	Mingo	
<u>Jefferson County:</u>	All of County	
	Batavia	
	Fairfield	
	Lockridge	
	Packwood	
	Pleasant Plain	
	County	
<u>Jones County:</u>	Anamosa	Monticello
	Center Junction	
	Martelle	
	Morley	
	Olin	
	Onslow	
	Oxford Junction	
	Wyoming	
	County	
<u>Keokuk County:</u>	All of County	Martinsburg
	Delta	Ollie
	Harper	Richland
	Gibson	Sigourney
	Hayesville	South English
	Hedrick	Thornburg
	Keota	Webster
	Keswick	What Cheer
	Kindross	County

	<u>Participating</u>	<u>Non-Participating</u>
<u>Kossuth County:</u>	All of County Fenton Ledyard Titonka Wesley Lone Rock LuVerne Algona	Whittemore Burt Lakota
<u>Lee County:</u>	All of County County Ft. Madison Keokuk West Point Donnellson Montrose Franklin	Houghton St. Paul
<u>Louisa County:</u>	Winfield(located in Henry Co.) Fredonia Dolumbus City Columbus Junction Grandview Cotter Oakville Wapello	Letts Morning Sun
<u>*Lucas County:</u>	(Rathbun Regional Planning Commission) All of County Appanoose County Wayne County Monroe County	
<u>Lyon County:</u>	All of County County George Lester Larchwood Little Rock Alvord Doon	Inwood Rock Rapids
<u>Madison County:</u>	All of County Bevington Macksburg Patterson St. Charles Truro Winterset County	Earlham(joining S. Dallas)

*Other than 28E

	<u>Participating</u>	<u>Non-Participating</u>
<u>Marion County:</u>	Bussey Lovilia(located in Monroe Co.) Dallas Sully(located in Jasper Co.) Harvey Knoxville Melcher Pella Pleasantville County	Hamilton Marysville
<u>Mills County:</u>	All of County Glenwood Malvern Hastings Emerson Pacific Junction Silver City Henderson	Tabor(located in Fremont Co.) County
<u>Mitchell County:</u>	Carpenter Mitchell Orchard Osage Stacyville St. Ansgar County Floyd County	McIntire
<u>Monona County:</u>	All of County Blencoe Castana Mapleton Moorhead Onawa Rodney Soldier Turin	Ute Whiting County
<u>*Monroe County:</u>	(Rathbun Regional Planning Commission) All of County Appanoose County Lucas County Wayne County	
<u>Montgomery County:</u>	Red Oak Villisca Elliott Stanton Grant Coburg All of County County	

*Other than 28E

	<u>Participating</u>	<u>Non-Participating</u>
<u>O'Brien County:</u>	Archer County Calumet Osceola County Hartley Sioux County Paullina Primghar Sanborn Sheldon Sutherland	Moneta
<u>Osceola County:</u>	All of County Ashton Harris Melvin Ocheyedan Sibley County O'Brien County Sioux County	
<u>Plymouth County:</u>	Brunsville Hinton Kingsley LeMars Merrill Oyens Remsen Struble County	Akron Craig(joining Monona Co.)
<u>Polk County:</u> Des Moines Metro Solid Waste Agency	Altoona Ankeny Bondurant Clive Des Moines Elkhart Grimes Urbandale	West Des Moines Windsor Heights Mitchellville Polk City Runnels County Pleasant Hill Johnston
<u>Pottawattamie County:</u>	Avoca Carson Carter Lake Crescent Hancock Macedonia McClelland Minden	Neola Treynor Underwood Walnut County Council Bluffs Oakland
<u>Pottawattamie County</u> <u>Sanitary Landfill Agency #2:</u>	Council Bluffs Carter Lake Crescent County	

	<u>Participating</u>	<u>Non-Participating</u>
<u>Poweshiek County:</u>	Barnes City Brooklyn Deep River Grinnell Guernsey Hartwick Malcom Montezuma	Searsboro County
<u>Ringgold County:</u>	Beaconsfield Benton Clearfield Delphos Ellston Kellerton Maloy Mt. Ayr	Redding Tingley County Decatur County
<u>Scott County:</u>	All of County Bettendorf Blue Grass Buffalo Davenport Dixon Donahue Durant(located Eldridge	LeClaire Long Grove Maysville McCausland New Liberty Panorama Park Plainview in Cedar Co.) Princeton Riverdale
<u>Shelby County:</u>	Defiance Earling Harlan Irwin Kirkman Panama Portsmouth Shelby	Tennant West Phalia Elk Horn(joining Cass Co.)
<u>Sioux County:</u>	Alton Boyden Granville Hospers Hull Matlock Maurice Orange City	Sioux Center County O'Brien County Osceola County Chatsworth Hawarden Ireton
<u>Tama County:</u>	County Clutier Dysart Elberon	Garwin Gladbrook Lincoln Montour Tama Toledo Traer Vining Chelsea

	<u>Participating</u>	<u>Non-Participating</u>
<u>Union County:</u>	Afton Arispe Creston Cromwell Kent Lorimor Shennon City	Thayer
<u>Van Buren County:</u>	All of County Birmingham Bonaparte Cantril Farmington Keosauqua Milton Mt. Sterling	Stockport County
<u>Washington County:</u>	Brighton Crawfordsville Coppock (located in Henry Co.) Ainsworth Riverside Washington Wellman West Chester County	Kalona
<u>*Wayne County:</u>	(Rathbun Regional Planning Commission) All of County Appanoose County Lucas County Monroe County	
<u>*Winnebago County:</u>	(Planning Commission) All of County	
<u>Winneshiek County:</u>	All of County Calmar Castalia Decorah Ft. Atkinson Jackson Junction Ossian Ridgeway Spillville County	

*Other than 28E

	<u>Participating</u>	<u>Non-Participating</u>
<u>Worth County:</u>	Northwood Grafton Kensett Joice Fertile County	Hanlontown(joining Cerro Gordo Co.) Manly(joining Cerro Gordo Co.)
<u>Wright County:</u>	All of County Belmond Clarion Dows Galt Eagle Grove Goldfield Rowan Wooldstock Meservey (located in Cerro Gordo Co.) County	Goodell (located in Hancock Co.) Kanawha (located in Hancock Co.)

APPENDIX VI

LOCAL PLANNING STATUS FOR SOLID WASTE

September 28, 1973

PLANNING STATUS - COUNTY & REGIONAL AGENCIES

COUNTY	PLAN RECEIVED	PLAN REVIEWED	ADDITIONAL INFORMATION PRESENTLY REQUESTED	PLAN APPROVED	AGENCY REFERRED TO AG ⁽¹⁾
Adair	x	x		x	
Adams	x	x	x		
Allamakee	x				
Appanoose/2	x	x	x		
Audubon	x				
Benton	x				
Black Hawk	x	x	x		
Boone	x	x	x		
Bremer	x	x		x	
Buchanan	x	x		x	
Buena Vista	x	x		x	
Butler	x	x		x	
Calhoun	x	x		x	
Carroll	x	x	x		
Cass	x	x		x	
Cedar	x	x		x	
Cerro Gordo	x				
Cherokee	x	x		x	
Chickasaw	x				
Clarke	x				x
Clay	x	x	x		
Clayton	x				
Clinton	x	x		x	
Crawford	x	x		x	
Dallas/4	x	x		x	
Davis	x	x	x		
Decatur	x				
Delaware	x	x		x	
Des Moines	x	x	x		
Dickinson	x	x		x	
Dubuque	x				
Emmet	x	x		x	
Fayette	x	x		x	
Floyd	x	x		x	
Franklin	x	x	x		
Fremont	x	x		x	
Greene	x				
Grundy					x
Guthrie	x	x	x		
Hamilton	x	x	x		
Hancock	x	x	x		

(1) For legal action due to non-compliance in respect to Chapter 455B.80 of the Code of Iowa

(2) Rathbun Regional Planning Commission

(4) South Dallas County Sanitary Landfill Agency

COUNTY	PLAN RECEIVED	PLAN REVIEWED	ADDITIONAL INFORMATION PRESENTLY REQUESTED	PLAN APPROVED	AGENCY REFERRED TO AG ⁽¹⁾
Hardin	x				
Harrison	x	x	x		
Henry	x	x			
Howard	x	x		x	
Humboldt	x	x	x		
Ida	x	x		x	
Iowa	x	x		x	
Jackson	x	x	x		
Jasper	x	x		x	
Jefferson	x	x		x	
Johnson	x				
Jones	x				
Keokuk	x	x		x	
Kossuth	x				
Lee	x	x	x		
Linn	x		x		
Louisa	x	x		x	
Lucas/2	x	x	x		
Lyon	x	x		x	
Madison	x	x		x	
Mahaska	x				x
Marion	x	x		x	
Marshall	x	x		x	
Mills	x				
Mitchell	x	x		x	
Monona	x	x		x	
Monroe/2	x	x	x		
Montgomery	x	x	x		
Muscatine	x	x	x		
O'Brien/3	x	x	x		
Osceola/3	x	x	x		
Page	x	x	x		
Palo Alto	x	x	x		
Plymouth	x	x		x	
Pocahontas	x	x	x		
Polk/5	x	x		x	
Pottawattamie #1	x				
Pottawattamie #2					x
Poweshiek	x	x		x	
Ringgold	x				

- (1) For legal action due to non-compliance in respect to Chapter 455B.80 of the Code of Iowa
- (2) Rathbun Regional Planning Commission
- (3) Sioux, O'Brien and Osceola County Area Solid Waste Agency
- (5) Des Moines Metropolitan Area Solid Waste Agency

COUNTY	PLAN RECEIVED	PLAN REVIEWED	ADDITIONAL INFORMATION PRESENTLY REQUESTED	PLAN APPROVED	AGENCY REFERRED TO AG(1)
Sac	x	x	x	x	
Scott/6	x	x		x	
Shelby	x	x		x	
Sioux/3	x	x	x		
Story	x				
Tama	x				
Taylor	x	x	x		
Union	x				
Van Buren	x				
Wapello	x	x	x		
Warren					x
Washington	x				
Wayne/2	x	x	x		
Webster	x	x	x		
Winnebago	x				
Winneshiek	x	x		x	
Woodbury	x	x	x		
Worth	x	x		x	
Wright	x	x	x		

- (1) For legal action due to non-compliance in respect to Chapter 455B.80 of the Code of Iowa
- (6) Bi-State Metropolitan Planning Commission
- (3) Sioux, O'Brien and Osceola County Area Solid Waste Agency
- (2) Rathbun Regional Planning Commission

PLANNING STATUS - CITIES AND TOWNS NOT PRESENTLY
PARTICIPATING IN COUNTY OR REGIONAL AGENCIES
BY COUNTY

COUNTY CITY OR TOWN	PLAN RECEIVED	PLAN REVIEWED	ADDITIONAL INFORMATION PRESENTLY REQUESTED	PLAN APPROVED	REFERRED TO AG ⁽¹⁾
Audubon					
Brayton	x				
Benton					
Belle Plaine	x				
Mt. Auburn					x
Norway					x
Boone					
Berkley					x
Bremer					
Janesville	x	x		x	
Readlyn	x				
Tripoli	x				
Buchanan					
Hazleton					
Buena Vista					
Albert City					
Linn Grove					
Rembrandt					
Sioux Rapids					
Butler					
Allison					x
Aplington	x				
Bristow	x				
Clarksville	x				
Greene	x				
New Hartford	x				
Shell Rock					
Calhoun					
Farnhamville	x	x	x		
Cass					
Atlantic	x	x	x		
Cerro Gordo					
Meservey					
Chickasaw					
New Hampton	x				
Clarke					
Osceola	x				x
Murray	x				x
Woodburn	x				x
Dallas					
Bouton					

(1) For legal action due to non-compliant status with respect to Chapter 455B.80 of the Code of Iowa

COUNTY CITY OR TOWN	PLAN RECEIVED	PLAN REVIEWED	ADDITIONAL INFORMATION PRESENTLY REQUESTED	PLAN APPROVED	REFERRED TO AG (1)
Dallas					
Dallas Center					x
Dawson	x	x			x
DeSoto	x	x	x		
Dexter	x				
Linden					
Minburn					
Perry	x				
Woodward	x				
Delaware					
Earlville					
Dubuque					
Cascade	x				
Graf					x
Peosta					
Sherrill					x
Zwingle					x
Fayette					
Arlington					x
St. Lucas					x
West Gate					
Franklin					
Oakland					
Fremont					
Imogene					
Grundy					
Dike	x				
Guthrie					
Bagley					
Bayard					
Casey					
Guthrie Center	x				
Jamaica					
Menlo					
Panora					
Yale					
Harrison					
Little Sioux					x
Woodbine	x				
Humboldt					
Pioneer					
Renwick					

(1) For legal action due to non-compliant status with respect to Chapter 455B.80 of the Code of Iowa

COUNTY CITY OR TOWN	PLAN RECEIVED	PLAN REVIEWED	ADDITIONAL INFORMATION PRESENTLY REQUESTED	PLAN APPROVED	REFERRED TO AG (1)
Jasper					
Prairie City	x				
Valeria					
Johnson					
Coralville	x				
Iowa City	x				
Kossuth					
Whittemore	x				
Linn					
Alburnett	x				
Ely	x				
Mt. Vernon	x				
Walker	x				
Mahaska					
Beacon					x
Eddyville	x				
Fremont					x
Leighton					x
New Sharon					x
Oskaloosa					x
Rose Hill					x
Mitchell					
McIntire	x				
O'Brien					
Moneta	x	x			
Plymouth					
Akron	x				
Craig(2)				x	
Polk					
Johnston					
Ringgold					
Diagonal					x
Shelby					
Elk Horn					x
Sioux					
Chatsworth(2)				x	
Hawarden	x	x	x	x	
Ireton					
Story					
Cambridge	x				
Collins	x				
Colo	x				
Tama					
Chelsea	x				
Clutier	x				

(1) For legal action due to non-compliant status with respect to Chapter 455B.80 of the Code of Iowa

(2) Participating in a 28E type of agreement with Hawarden, Iowa

COUNTY CITY OR TOWN	PLAN RECEIVED	PLAN REVIEWED	ADDITIONAL INFORMATION PRESENTLY REQUESTED	PLAN APPROVED	REFERRED TO AG ⁽¹⁾
Taylor					
Althelstan					x
Blockton					x
Conway					x
New Market					x
Sharpsburg					x
Union					
Thayer	x				
Wapello					
Kirkville					x
Chillicothe					x
Warren					
Ackworth					x
Carlisle					x
Cummings					x
Hartford					x
Indianola					x
Lacona					x
Martensdale					x
Milo					x
New Virginia	x				x
St. Mary					x
Sandyville					x
Woodbury					
Sioux City	x	x	x		

(1) For legal action due to non-compliant status with respect to Chapter 455B.80 of the Code of Iowa

APPENDIX VII
LOCAL SOLID WASTE PLANNING FOR
THE STATE OF IOWA

Paper Presented at Iowa State University

LOCAL SOLID WASTE PLANNING
IN THE STATE OF IOWA
Charles C. Miller

Introduction

In the past Iowa has had no control over the disposal of its solid wastes. This is primarily because of Iowa's rural nature and its residents' attitudes that this waste did not really constitute a danger. However, with the growing interest in ecology, people's attitudes have changed and they now demand that all sources of environmental pollution be abated. The culmination of this pressure has lead to the passage of air and solid waste acts which place stringent requirements on the disposal of solid wastes.

The passage of the air quality law eliminates the legal open burning of solid waste. This law, backed by vigorous enforcement by Iowa's Air Quality Commission, has virtually stopped open burning in the State. The solid waste law allowed a transition period of five years for full compliance.

Iowa's Five Year Dilemma

This period was provided for a smooth transition into a functioning solid waste management system. However because of the open burning regulations and the attrition of facilities many communities have been forced to comply early. Thus a variety of systems is being developed, some of which are proving to be extremely effective. Other communities will hold out until the last day before developing an acceptable system. The legislature anticipated this situation and provided an interim period during which plans must be developed. To many communities this is

nothing more than the starting gun in the race to beat the deadline when enforcement will begin. However many communities are, in fact, using this planning period for what it was intended.

The Planning Period

The legislature provided communities two and one-half years to develop a plan for the establishment of a sanitary disposal facility. This facility will be significantly more expensive and difficult to maintain than previous ones. However by careful planning this new facility will be part of a solid waste management system which represents the optimum solution to the solid waste problem within the particular community.

The second two and one-half years was provided by the legislature so that the communities would be able to implement their plans and work out any problem prior to the final deadline. Thus the key to the establishment of a good solid waste management system is the development of a good plan.

Planning

In the development of any plan there are three pieces of information which are vital. They are the planning environment, the operating system, and a system goal. The environment in which such planning takes place must be identified, and in general, consists of those features of the present system which cannot be easily changed.

The operating system itself, as it currently functions or fails to function, is the second component. In solid waste these are the physical features of the natural environment which can affect the collection and disposal of solid waste and the present solid waste system as it exists. The final piece of information is a goal toward which a system can develop.

The goal of solid waste planning in Iowa is to protect the citizens of the state from such hazards to their health, safety and welfare, as might result from the controlled disposal of solid waste. This may be attained by sanitary disposal projects for the final disposition of wastes which are both economical and efficient.

Key

The key to solid waste planning is that the disposal of wastes must be both economical and efficient. This is necessary because most local governmental budgets cannot stand another demanding program without some form of outside support.

Therefore, the new system cannot be much more expensive than the present solid waste system. This implies a bare-bones approach to solid waste management which may, as time passes, deteriorate to something less than that dictated by the State goal. Such deterioration would occur if the present system of solid waste management were, in fact, economical and efficient, which it is not. Therefore the problem becomes finding a tool which will enable local solid waste management systems to achieve the State goal.

The Department of Environmental Quality has worked with local communities in the development of their plans by providing a limited amount of technical assistance. This assistance has come in the usual manner of answering questions and providing information. However the responsibility rests directly on the cities, counties and private agencies involved. Therefore the Department has emphasized two things in their dealings with communities. First, that the economies of scale become extremely important in solid waste management so the joint operation of systems is encouraged. The operation of a county wide or larger system in which the cities and the county work together appears to be most feasible. This type of operation is being planned by the majority of Iowa's communities and counties. Second, the

Department is encouraging planning groups to plan, in a logical manner, for a complete solid waste management system. To this end the Department has developed a set of guidelines which provide a format for formal logical planning. The guidelines are based upon "Value Analysis".

Value Analysis in Industry

"Value Analysis" has been used by the hardware industries for years as a method of remaining competitive in a field where product technology is standardized and where raw materials and labor costs continually rise. Industry will take a product as simple as a light switch, break it down into its individual components and analyze the function of each. They will then examine in a speculative manner all possible alternate methods of duplicating each individual component function. Then industry will assemble many different systems of these new components. The new component systems are analyzed and a plan is devised for the manufacture of a new light switch which may or may not be radically different from the original. Subsequently, a plan is prepared detailing the method by which the new light switch will be constructed. This manufacturer's plan is evaluated in context with the overall management plans for the particular industry and the industry either approves, rejects or modifies the manufacturing plan.

Value Analysis and Solid Waste

This very same procedure has been applied to the analysis of solid waste disposal systems. (See Appendix 1) As a first step, the present solid waste management system must be examined in relation to the state solid waste goal. The present system must be reviewed and each of its components described, i.e., storage, collection, transportation, processing, recycling, disposal organization and management. The operating environment of the system must be defined including

political jurisdictions, weather conditions, transportation facilities, etc. These conditions are identified and described by using the forms provided in the information phases of the guidelines. An example form is shown in appendix 2.

Intelligent planning can only be instituted if the planner understands the present system, its environment, and has a goal to guide his efforts. The state has provided the planner with a goal to direct his activities and he can gain insight concerning the present system and its environment by the completion of the information phase of the State Solid Waste Guidelines. The final step in completion of this phase of the planning effort is the translation of this data into actual problems which must be overcome in order to achieve the goal. The solution of these problems becomes the objective of the planning study.

The second or speculative phase of the planning study is the generation of alternative approaches, which are likely to accomplish study objectives, and which may replace the existing system components (see appendix 3).

The technique to be used is called "brainstorming". This consists of the development of ideas which may appear to be workable alternatives to an existing component without any attempt to further evaluate them. The objective is to generate a large number of component alternatives upon which new systems can be based.

The third or analytical phase is intended to allow examination of the relative merits of the component alternatives and to construct new solid waste management systems by assembling these components in different combinations (see appendix 4).

A large number of component ideas can be developed into an almost endless number of systems. However through a cursory examination most of the systems will be eliminated. By further analysis of economic considerations the system alternatives can be reduced to a relative few requiring extensive analysis.

In the fourth or planning phase the few remaining alternative systems are analyzed further, both by economic comparisons and environmental compatability (see appendix 5). That system which is finally selected is the operational plan upon which the new solid waste management system will be based.

The final phase, plan submission, is simply the presentation of a format for preparation of a plan. A scheme is provided by way of which the assembled information can be tabulated into a final operational plan.

Thus the Iowa State Guidelines for the Development of Local Solid Waste Management Plans provide the local officials not only with a set of requirements, but a method of meeting those requirements through the completion and analysis of simple forms presented in cookbook fashion. The net result will be a plan detailing the method by which the new system will operate. The plan will describe: who (cities, towns or counties) is involved; what is being planned in terms of finances, storage, collection and disposal of solid waste; where the disposal site may be located; how the plan is to be put into action (land purchase, construction, personnel, organization, etc.) and why the specific proposal regarding storage, collection and the method of handling solid waste appears to be the most advantageous from the standpoints of cost, community interests, etc. The local plan will then be evaluated in context with the overall state solid waste management plan and the Executive Director of the Department of Environmental Quality will either approve, reject, or modify the local plan.

Conclusion

A Plan is the formula for activity. A mathematical formula ensures a desired result if applied correctly. So does a plan. Local planning organizations have been given a time period and a method with which to develop their plans. The success of their system may depend upon the success of their planning effort. The initial planning phase of local solid waste is drawing to a close and the merits of individual plans will be tested as implementation begins.

Information Phase

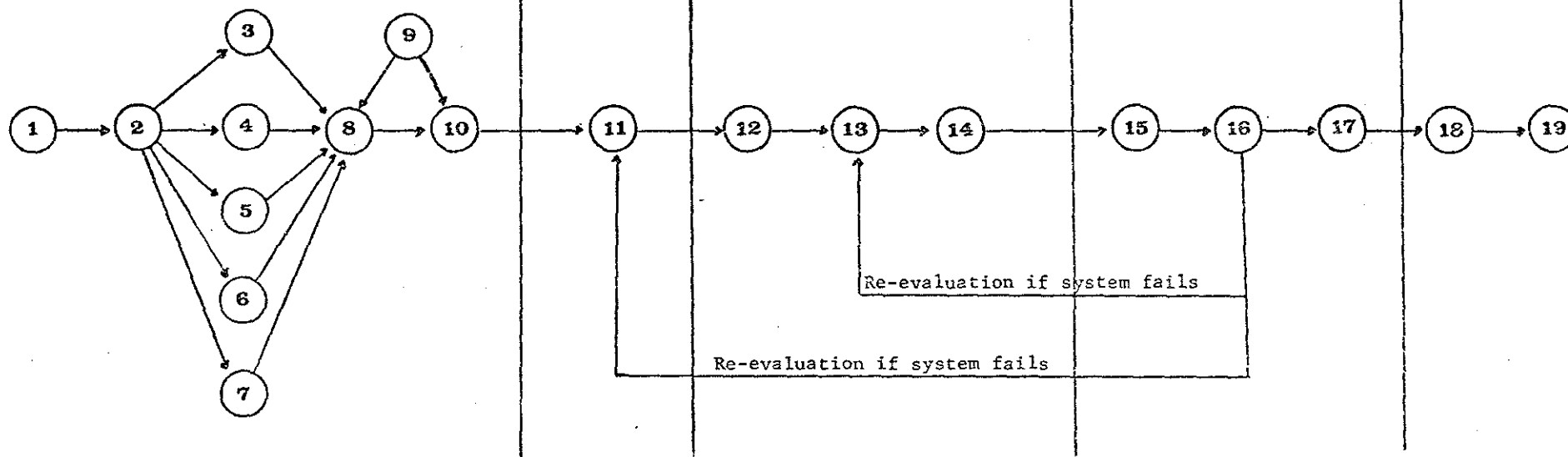
Date Evaluation

Speculative
Phase

Analytical
Phase

Planning
Phase

Plan Submission
Phase



- 1 Start
- 2 Environmental Inventory
- 3 System Deficiencies
- 4 Future Constraints
- 5 Future Needs
- 6 Present System Costs
- 7 Special Requirements
- 8 Problem Definition
- 9 Solid Waste Goal
- 10 Set Objectives

- 11 Generate Alternative Ideas for Solutions
- 12 Idea Evaluation
- 13 System Generation
- 14 Cost Comparison and Selection of Most Promising Systems

- 15 Detailed System Cost Study
- 16 System Evaluation
- 17 Recommendation and Project Scheduling
- 18 Prepare Plan Format
- 19 Submit Plan

PLANNING FLOW CHART - APPENDIX 1

Begin text of second and succeeding pages here.

APPENDIX 2

Local Transportation Restrictions

Put title on first page, within this box

In the selection of equipment and haul routes the transportation restrictions within the study area become very important.

Put author's name on first page here, centered. Use parallel columns for multiple authors

List all local transportation ordinances which might affect the collection and transportation of solid waste.

	Identification	Speed	Restrictions		Load	Other
	Road No.	Limits	Height	Width	Limit	
<u>MUNICIPAL</u>						
1						
<u>COUNTY</u>						
1						
<u>STATE</u>						
1						
<u>INTERSTATE</u>						
1						

APPENDIX 3

Processing

This is the creative part of the project study. Generate as many ideas, processes or methods that fulfill the requirements as possible. Do not evaluate the ideas during this phase of the project. The following is a suggested guide to direct the areas of creative thinking.

- | | | |
|---------------|-----------------|----------|
| 1. None | 4. Bailing | 7. Other |
| 2. Grinding | 5. Incineration | |
| 3. Separation | 6. Transfer | |

APPENDIX 4

Begin text of second and succeeding pages here.

Cost Comparisons

Put title on first page, within this box

Develop cost information for each feasible idea to use for cost comparison purposes. Assemble ideas for storage, collection, transportation, processing, recycling, disposal, and management, into complete solid waste systems. Use the best cost estimates available.

Cost Information of System no. _____ by Ideas

Idea, text of first page here Definitions	Construction Cost	Equipment Cost	Labor Cost	Operational Cost	Total Cost
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					

APPENDIX 5

Test and Evaluation

Detail the analysis necessary to verify that the system can successfully obtain the objectives set forth in Phase I and still operate within local constraints. Financing, public acceptance, and the technical capability of those involved are typical local constraints.

APPENDIX VIII

KEY STEPS IN THE DEVELOPMENT OF

A SANITARY DISPOSAL PROJECT

KEY STEPS IN THE DEVELOPMENT
OF A SANITARY DISPOSAL PROJECT
DEPARTMENT OF ENVIRONMENTAL QUALITY

	<u>Principal Activity</u>	<u>Impact of Activity and/or Comments</u>
A.	Public Relations	Builds public support, encourages citizen participation and prevents dissemination of erroneous information.
B.	Preliminary Organization and Planning	Formation of technical advisory and study groups stimulates interest and promotes informed participation in planning.
C.	Organization of Association or Agency	Preparation of the agreement and registration with the Secretary of State gives the association legal authority to operate and function.

Public Information Program relating to the nature of the solid waste problem, alternate solutions, benefits of a land-fill and plan for ultimate use, etc. Include slides, motion pictures, outside speakers.

1. Meeting of city, town and county representatives to determine potential membership and to achieve broad consensus on implementation of a solid waste management system.
2. Preliminary determination of feasibility of forming a multi-county organization for planning.

1. Form solid waste management planning committee with representatives from cities, towns and counties.
2. Prepare draft agreement for discussion, finalization and adoption by ordinance, resolution or otherwise, in compliance with Chapter 455B, Code of Iowa.
3. Secure signatures of county and municipal officials.
4. Submit agreement to the Executive Director of DEQ for approval (Sec. 28E.10).
5. File agreement with County Recorder and Secretary of State.

Principal Activity

Impact of Activity and/or Comments

D. Plan Development and Submission

1. Compile the pertinent data (kinds and amounts of solid waste; waste generation centroids; storage; collection; and disposal practices, etc.) Review the data to identify problems caused by improper management of solid waste. The solution to these problems become the planning objectives.
2. Identify the numerous available solid waste management alternatives, including regionalization and technical innovations.
3. Analyze alternate courses of action based on economic, political and technical considerations.
4. Finalize plan on basis of costs, benefits, and community desires.
5. Prepare and submit plan and method proposed for implementation in accordance with legally imposed time limits.

This phase is of paramount importance from the standpoint of long term costs and benefits to the public. Guidelines for solid waste management planning are available from the Department of Environmental Quality.

E. Site Investigation for Sanitary Landfill

(Refer to Department of Environmental Quality rules regarding site investigation for incineration, composting, etc.)

1. Request assistance from the Geological Survey in investigating alternative sites.
2. Verify whether zoning is acceptable for sites selected.
3. Obtain a legally binding purchase option on the site or sites desired.
4. Request earth-resistivity tests from the Geological Survey so that sites can be eliminated that are unlikely to meet state requirements. Test data will also be useful in suggesting an optimum plan for drilling.
5. Obtain SCS soil and drainage information, examine topographic maps, aerial photos, etc.

This phase will minimize adverse environmental effects of the proposed sanitary disposal projects.

Principal Activity

Impact of Activity and/or Comments

F. Site Engineering

1. Analyze alternate sites from the standpoint of land cost, modification and preparation costs, approach roads and bridges, etc.
2. Submit the plan and supporting documents required by Chapter 3 of the Sanitary Disposal Project rules, for review by Department of Environmental Quality in consultation with the Iowa Geological Survey.
3. A permit for the Sanitary Disposal Project will be issued by the Executive Director, provided that the plan meets the requirements of Chapter 455B, Code of Iowa, and the Departmental Rules.

Completion of Step F will ensure that every city, town and county has provided a plan for the establishment and operation of a sanitary disposal project.

Plans must be prepared and submitted by, or under the supervision of, a licensed professional engineer, in conformity with Sec. 114 of the Code of Iowa.

APPENDIX IX
MINIMUM PLAN REQUIREMENTS
TO COMPLY WITH
CHAPTER 406.7 IOWA CODE

MINIMUM PLAN REQUIREMENTS TO COMPLY WITH
CHAPTER 406.7, IOWA CODE 1971

The first essential step in planning is to determine who is to be served by the solid waste management plan and where those persons reside. The number of persons involved in the association or agency will determine the complexity of the information that needs to be gathered.

The trend towards regionalization is evident not only in Iowa but also throughout the United States. It is believed that this trend is desirable from the standpoint of long term costs and benefits and that it is also in the national interest. Cities and towns which have not already considered forming or entering a county wide or regional organization are strongly urged to do so.

PLAN OUTLINE

ELEMENTS OF THE REPORT

Foreword or Preface

Table of Contents

I. INTRODUCTION AND PURPOSE OF THE PLAN

II. SUMMARY

III. BACKGROUND INFORMATION

a. Description of present practices

Study area - What are the names of the cities, towns and counties or townships which are included in the study?

Storage - What types of containers are being used? Are storage conditions satisfactory from a sanitation standpoint? Is storage controlled by ordinances? Are such ordinances being enforced?

Collection - State number of private and public collection agencies who are engaged in collection activities. What is the estimate of the percentage of solid waste collected by?

Private agencies	_____%
Public agencies	_____%
Not collected	_____%

TOTAL	100%
-------	------

a. Description of present practices (continued)

Transportation - What is the estimated percentage of solid waste that is moved by open truck, closed truck, and automobiles? What are the load limitations on highways? Maximum size of vehicles recommended?

b. Solid waste quantities generated

Sources of waste - Describe the categories of waste that are being generated in the study area; namely, household, commercial, demolition, construction, municipal (sludge and septic), junk cars, toxic wastes, toxic waste containers, others, etc. What is the present quantity of household and commercial waste? What is the projected quantity of household and commercial waste?

c. Additional information required

Soils and geology - Since the protection of ground water resources is a major consideration in the selection of solid waste disposal sites, early contact should be made with the Iowa Geological Survey to determine if a problem exists in locating a site.

Zoning - Are zoning regulations such that a permit can be obtained without difficulty?

Public relations - Has solid waste disposal been publicized sufficiently to ensure support?

IV. DATA EVALUATION

Good solid waste management requires that storage, collection, transportation and disposal be coordinated. Responsibility in terms of a chain of command must also be implemented. Discussion with respect to a large number of alternatives are necessary; namely, type of containers recommended, kind of collection ~~service desired~~, (curb, set out and set back, set out only, backyard, etc.); intermediate processing including costs such as grinding, transfer stations, incineration, etc., amount of recycling proposed; special needs and constraints such as bodies of water and physical features that must be taken into account, and social and political relationships likely to be of significance to the plan.

V. SYSTEM PLAN

This is the plan recommended for implementation and should be based on a study of the cost, benefits and the community desires. Plan submission should also include the following: determination of the centroids of

V. SYSTEM PLAN (continued)

solid waste generation (a disposal site that offers the advantage of the lowest haul cost)

Storage - Types of containers recommended.

Collection and transportation - What method of pick up is recommended, (curb, alley, etc.)? Should small towns and rural areas be provided with collection boxes which could be picked up periodically? What is the cost of such a service? Where should the containers be placed? What is the maximum haul distance in the area under study? How will bulky wastes and special items be handled? Will collection be done by municipalities or by private agencies?

Recycling - Is there a local market for wastes such as paper?

Ultimate land use - What is the most desirable use of the area selected for a disposal site?

Financing - The feasibility of the facility will have to be assessed. What is the source of funds? Relate the source of funds to capital costs and operating costs of similar projects in the state which are now in operation. Will the disposal site be owned or operated by the public?

Legal - Should all haulers be licensed? Is collection mandatory? Will storage be controlled by ordinances? What are the enforcement capabilities of the cities, towns and rural areas?

Accessibility - How accessible is the site? What is the cost of an all weather highway?

Land requirements - Calculate the amount of land required for the next 20 years or more.

Present dumps - Who is going to be responsible for the proper closing of dumps in the area?

Administration - Who will manage the entire solid waste system? What method of control or reporting is proposed?

VI. SITE INVESTIGATION AND DESIGN OF THE FACILITY

Iowa law requires that a plan for the actual sanitary disposal project be prepared under the direct supervision of an engineer as defined in Chapter 114 of the Iowa Code. The planning outlined above should be coordinated with the engineer that is likely to be responsible for the site investigation and site engineering.

APPENDIX X

MODEL SOLID WASTE ORDINANCE

MISSOURI STATE DEPARTMENT OF HEALTH

AN ORDINANCE REGULATING SOLID WASTE MANAGEMENT
(Storage, Collection, Transportation, Processing and Disposal)

ORDINANCE NO. _____

AN ORDINANCE: PERTAINING TO PUBLIC HEALTH, SAFETY, AND WELFARE: REGULATING STORAGE, COLLECTION, TRANSPORTATION, PROCESSING AND DISPOSAL OF SOLID WASTE: PROVIDING FOR COLLECTION AND DISPOSAL OF SOLID WASTE: PROVIDING A PENALTY FOR VIOLATION OF THE PROVISIONS OF THIS ORDINANCE AND REPEALING ALL ORDINANCES IN CONFLICT HEREWITH.

BE IT ORDAINED by the Governing Body of the City of _____, Missouri:

SECTION 1. DEFINITIONS

For the purposes of this ordinance the following terms shall be deemed to have the meaning indicated below:

APPROVED INCINERATOR - an incinerator which complies with all current regulations of the Missouri Air Conservation Commission.

BULKY RUBBISH - non-putrescible solid wastes consisting of combustible and/or non-combustible waste materials from dwelling units, commercial, industrial, institutional, or agricultural establishments which are either too large or too heavy to be loaded in solid waste collection vehicles with safety and convenience by solid waste collectors, with the equipment available therefor.

CITY - the City of _____, Missouri.

COLLECTION - removal and transportation of solid waste from its place of storage to its place of processing or disposal.

DEMOLITION AND CONSTRUCTION WASTE - waste materials from the construction or destruction of residential, industrial or commercial structures.

DIRECTOR - the director of the Solid Waste Management Program of the City, or his authorized representative.

DISPOSABLE SOLID WASTE CONTAINER - disposable plastic or paper sacks with a capacity of 20 to 35 gallons especially designed for storage of solid waste.

DWELLING UNIT - any room or group of rooms located within a structure, and forming a single habitable unit with facilities which are used, or are intended to be used, for living, sleeping, cooking and eating.

GARBAGE - putrescible animal or vegetable wastes resulting from the handling, preparation, cooking, serving or consumption of food.

HAZARDOUS WASTES - including but not limited to: pathological wastes, explosive wastes, pesticides, pesticide containers, toxic or radioactive materials.

MULTIPLE HOUSING FACILITY - a housing facility containing more than one dwelling unit under one roof.

OCCUPANT - any person who, alone or jointly or severally with others, shall be in actual possession of any dwelling unit or of any other improved real property, either as owner or as a tenant.

PERSON - any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, political subdivision, or organization of any kind, or their legal representative, agent or assigns.

PROCESSING - incinerating, composting, baling, shredding, salvaging, compacting and other processes whereby solid waste characteristics are modified or solid waste quantity is reduced.

REFUSE - solid waste.

SOLID WASTE - unwanted or discarded waste materials in a solid or semi-solid state, including but not limited to garbage, ashes, street refuse, rubbish, dead animals, animal and agricultural wastes, yard wastes, discarded appliances, special wastes, industrial wastes, and demolition and construction wastes.

- (a) Commercial solid waste - solid waste resulting from the operation of any commercial, industrial, institutional or agricultural establishment, and multiple housing facilities with more than _____ (____) dwelling units.
- (b) Residential solid waste - solid waste resulting from the maintenance and operation of dwelling units, excluding multiple housing facilities with more than _____ (____) dwelling units.

SOLID WASTE CONTAINER - receptacle used by any person to store solid waste during the interval between solid waste collections.

SOLID WASTE DISPOSAL - the process of discarding or getting rid of unwanted material. In particular the final deposition of solid waste by man.

SOLID WASTE MANAGEMENT - the entire solid waste system of storage, collection, transportation, processing and disposal.

STORAGE - keeping, maintaining or storing solid waste from the time of its production until the time of its collection.

YARD WASTES - grass clippings, leaves, tree trimmings.

SECTION 2. SOLID WASTE STORAGE

SECTION 2.1 - The occupant of every dwelling unit and of every institutional, commercial or business, industrial or agricultural establishment producing solid waste within the corporate limits of the City, shall provide sufficient and adequate containers for the storage of all solid waste except bulky rubbish and demolition and construction waste to serve each such dwelling unit and/or establishment; and to maintain such solid waste containers at all times in good repair.

SECTION 2.2 - The occupant of every dwelling unit and of every institutional, commercial, industrial, agricultural or business establishment shall place all solid waste to be collected in proper solid waste containers, except as otherwise provided herein, and shall maintain such solid waste containers and the area surrounding them in a clean, neat and sanitary condition at all times.

SECTION 2.3 - Residential solid waste shall be stored in containers of not more than 35 gallons nor less than 20 gallons in nominal capacity. Containers shall be leakproof, waterproof, and fitted with a tight lid and shall be properly covered at all times except when depositing waste therein or removing the contents thereof. The containers shall have handles, bails or other suitable lifting devices or features. Containers shall be of a type originally manufactured for residential solid waste, with tapered sides for easy emptying. They shall be of light weight and sturdy construction. The weight of any individual container and contents shall not exceed 75 pounds. Galvanized metal containers, rubber or fiberglass containers, and plastic containers which do not become brittle in cold weather, may be used. Disposable solid waste containers with suitable frames or containers as approved by the (Director) may also be used for storage of residential solid waste.

SECTION 2.4 - Commercial solid waste shall be stored in solid waste containers as approved by the (Director). The containers shall be waterproof, leakproof and shall be covered at all times except when depositing waste therein or removing the contents thereof; and shall meet all requirements as set forth by Section 6.

SECTION 2.5 - Tree limbs less than 4" in diameter and brush shall be securely tied in bundles not larger than 48" long and 18" in diameter when not placed in storage containers. The weight of any individual bundle shall not exceed 75 pounds.

SECTION 2.6 - Yard wastes shall be stored in containers so constructed and maintained as to prevent the dispersal of wastes placed therein upon the premises served, upon adjacent premises, or upon adjacent public rights of way. The weight of any individual container and contents shall not exceed 75 pounds.

SECTION 2.7 - Solid waste containers which are not approved will be collected together with their contents and disposed of.

SECTION 3. COLLECTION OF SOLID WASTE

SECTION 3.1 - The City shall provide for the collection of solid waste as follows:

(a) Collection of residential solid waste

The City shall provide for the collection of all residential solid waste in the City, provided, however, that the City may provide the collection service by contracting with a person, county, or other city or a combination thereof, for the entire City or portions thereof, as deemed to be in the best interests of the City.

(b) Other collections

The City (may, at its discretion,) (shall) provide commercial solid waste collection services upon specific application of the owners or persons in charge thereof. However, in the event that such application is not made or approved, it shall be the duty of such establishment to provide for collection of all solid waste produced upon any such premises.

SECTION 3.2 - All solid waste from premises to which collection services are provided by the City shall be collected, except bulky rubbish as defined herein, provided however, that bulky rubbish will be collected if tied securely in bundles not exceeding reasonable limitations of weight and bulk to be fixed by regulations to be made and promulgated by the (Director) as hereinafter provided. All solid waste collected shall, upon being loaded into collection equipment, become the property of the collection agency.

SECTION 3.3 - Tree limbs and yard wastes, as described in Sections 2.5 and 2.6 respectively, shall be placed at the curb or alley for collection. Solid waste containers as required by this ordinance for the storage of other residential solid waste shall be placed (at the curb or alley) (at the rear of the building) for collection. Any solid waste containers, tree limbs, yard wastes, or other solid waste permitted by this ordinance to be placed at the curb or alley for collection shall not be so placed until the regularly scheduled collection day.

SECTION 3.4 - Bulky rubbish shall be collected by request to the (Director). The (Director) shall establish the procedure for collecting bulky rubbish.

SECTION 3.5 - Solid waste collectors, employed by the City or a solid waste collection agency operating under contract with the City, are hereby authorized to enter upon private property for the purpose of collecting solid waste therefrom as required by this ordinance. Solid waste collectors shall not enter dwelling units or other residential buildings for the purpose of collecting residential solid waste. Commercial solid waste may be removed from within commercial establishments upon written request of the owner and approval by the (Director).

SECTION 3.6 - The following collection frequencies shall apply to collections of solid waste within the City:

All residential solid waste, other than bulky rubbish, shall be collected at least _____ weekly. At least _____ () hours shall intervene between collections. All commercial solid waste shall be collected _____ weekly, and shall be collected at such lesser intervals as may be fixed by the (Director) upon a determination that such lesser intervals are necessary for the preservation of the health and/or safety of the public.

SECTION 3.7 - Residential solid waste containers shall be stored upon the residential premises. Commercial solid waste containers shall be stored upon private property, unless the owner shall have been granted written permission from the City to use public property for such purposes. The storage site shall be well drained; fully accessible to collection equipment, public health personnel and fire inspection personnel.

SECTION 3.8 - All collection vehicles shall be maintained in a safe, clean and sanitary condition, and shall be so constructed, maintained and operated as to prevent spillage of solid waste therefrom. All vehicles to be used for collection of solid waste shall be constructed with water-tight bodies and with covers which shall be an integral part of the vehicle or shall be a separate cover of suitable material with fasteners designed to secure all sides of the cover to the vehicle and shall be secured whenever the vehicle is transporting solid waste, or, as an alternate, the entire bodies thereof shall be enclosed, with only loading hoppers exposed. No solid waste shall be transported in the loading hoppers.

SECTION 3.9 - Permits shall not be required for the removal, hauling or disposal of earth and rock material from grading or excavation activities, however, all such material shall be conveyed in tight vehicles, trucks or receptacles, so constructed and maintained that none of the material being transported shall spill upon the public rights of way.

SECTION 3.10 - Transportation and disposal of demolition and construction wastes shall be in accordance with Sections 4 and 5.

SECTION 4. DISPOSAL OF SOLID WASTE

SECTION 4.1 - Solid wastes shall be disposed of at a processing facility or disposal area approved by the City and complying with all requirements of the Missouri Division of Health.

SECTION 4.2 - The (Director) may classify certain wastes as hazardous wastes which will require special handling and shall be disposed of only in a manner acceptable to the (Director) and which will meet all Local, State and Federal regulations.

SECTION 5. PERMITS

SECTION 5.1 - No person shall engage in the business of collecting, transporting, processing or disposing of solid waste within the corporate limits of the City, without first obtaining an annual permit therefor from the City; provided, however, that this provision shall not be deemed to apply to employees of the holder of any such permit.

SECTION 5.2 - No such permit shall be issued until and unless the applicant therefor, in addition to all other requirements set forth, shall file and maintain with the (Director) evidence of a satisfactory public liability insurance policy, covering all operations of such applicant pertaining to such business and all vehicles to be operated in the conduct thereof, in the amount of not less than \$ _____
(_____) for each person injured or killed, and in the amount of not less than \$ _____ (_____)
in the event of injury or death of two or more persons in any single accident, and in the amount of not less than \$ _____
(_____) for damage to property. Such policy may be written to allow the first \$ _____ (_____)
of liability for damage to property to be deductible. Should any such

policy be cancelled, the (Director) shall be notified of such cancellation by the insurance carrier in writing not less than (10) days prior to the effective date of such cancellation, and provisions to that effect shall be incorporated in such policy, which shall also place upon the company writing such policy the duty to give such notice.

SECTION 5.3 - Each applicant for any such permit shall state in his application therefor; (a) the nature of the permit desired, as to collect, transport, process, or dispose of solid waste or any combination thereof; (b) the characteristics of solid waste to be collected, transported, processed, or disposed; (c) the number of solid waste vehicles to be operated thereunder; (d) the precise location or locations of solid waste processing or disposal facilities to be used; (e) boundaries of the collection area; and (f) such other information as required by the (Director).

SECTION 5.4 - If the application shows that the applicant will collect, transport, process or dispose of solid wastes without hazard to the public health or damage to the environment and in conformity with the laws of the State of Missouri and this ordinance, the (Director) shall issue the permit authorized by this ordinance. The permit shall be issued for a period of one year, and each applicant shall pay therefor a fee of _____ (\$_____) for each solid waste processing or disposal facility to be operated and a fee of _____ (\$_____) for each collection vehicle to be used. If in the opinion of the (Director), modifications can be made to the application regarding service, equipment, or mode of operation, so as to bring the application within the intent of this ordinance; the (Director) shall notify the applicant in writing setting forth the modification to be made and the time in which it shall be done.

SECTION 5.5 - If the applicant does not make the modifications pursuant to the notice in 5.4 within the time limit specified therein, or if the application does not clearly show that the collection, transportation, processing or disposal of solid wastes will create no public health hazard or be without harmful effects on the environment, the application shall be denied and the applicant notified by the (Director), in writing, stating

the reason for such denial. Nothing in this section shall prejudice the right of the applicant to reapply - after the rejection of his application provided that all aspects of the reapplication comply with the provisions of this ordinance.

SECTION 5.6 - The annual permit may be renewed simply upon payment of the fee or fees as designated herein if the business has not been modified. If modifications have been made, the applicant shall reapply for a permit as set forth in Sections 5.2 and 5.3. No permits authorized by this ordinance shall be transferrable from person to person.

SECTION 5.7 - In order to insure compliance with the laws of this State, this ordinance and the rules and regulations authorized herein, the (Director) is authorized to inspect all phases of solid waste management within the City of _____. No inspection shall be made in any residential unit unless authorized by the occupant or by due process of law. In all instances where such inspections reveal violation of this ordinance, the rules and regulations authorized herein for the storage, collection, transportation, processing or disposal of solid waste or the laws of the State of Missouri, the (Director) shall issue notice for each such violation stating therein the violation or violations found, the time and date and the corrective measure to be taken, together with the time in which such corrections shall be made.

SECTION 5.8 - In all cases, when the corrective measures have not been taken within the time specified, the (Director) shall suspend or revoke the permit or permits involved in the violation, however, in those cases where an extension of time will permit correction and there is no public health hazard created by the delay, one extension of time not to exceed the original time period may be given.

SECTION 5.9 - Any person who feels aggrieved by any notice of violation or order issued pursuant thereto of the (Director) may, within _____ (_____) days of the act for which redress is sought appeal directly to the Court of _____ in writing, setting forth in a concise statement the act being appealed and the grounds for its reversal.

SECTION 5.10 - All motor vehicles operating under any permit required by this ordinance shall display the number or numbers on each side in colors which contrast with that of the vehicle, such numbers to be clearly legible and not less than _____ high. Each permit for processing or disposal facilities shall be prominently displayed at the facility.

SECTION 6. RULES AND REGULATIONS

The (Director) shall make, amend, revoke, and enforce reasonable and necessary rules and regulations, governing, but not limited to:

- (a) Preparation, drainage and wrapping of garbage deposited in solid waste containers.
- (b) Specifications for solid waste containers, including the type, composition, equipment, size and shape thereof.
- (c) Identification of solid waste containers and of the covers thereof, and of equipment thereto appertaining, if any.
- (d) Weight limitations on the combined weight of solid waste containers and the contents thereof, and weight and size limitations on bundles of solid waste too large for solid waste containers.
- (e) Storage of solid waste in solid waste containers.
- (f) Sanitation, maintenance and replacement of solid waste containers.
- (g) Schedules of and routes for collection of solid waste.
- (h) Collection points of solid waste containers.
- (i) Collection and disposal of solid waste.
- (j) Processing facilities and fees for the use thereof.
- (k) Disposal facilities and fees for the use thereof.
- (l) Records of quantity and type of wastes received at processing and/or disposal facilities.
- (m) Handling of special wastes such as toxic wastes, sludges, ashes, agriculture, construction, bulky items, tires, automobiles, oils, greases, etc.

The (City Clerk) or such other City official who is responsible for preparing utility and other service charge billings for the City, is

hereby authorized to make and promulgate reasonable and necessary rules and regulations for the billing and collection of solid waste collection and/or disposal service charges, as hereinafter provided for.

A copy of any and all rules and regulations made and promulgated under the provisions hereof shall be filed in the office of the City Clerk of the City.

SECTION 7. PROHIBITED PRACTICES

It shall be unlawful for any person to: (1) deposit solid waste in any solid waste container other than his own, without the written consent of the owner of such container and/or, with the intent of avoiding payment of the service charge hereinafter provided for solid waste collection and disposal; (2) interfere in any manner with solid waste collection equipment, or with solid waste collectors in the lawful performance of their duties as such, whether such equipment or collectors shall be those of the City, or those of a solid waste collection agency operating under contract with the City; (3) burn solid waste unless an approved incinerator is provided or unless a variance has been obtained from the appropriate air pollution control agency; (4) dispose of solid waste at any facility or location which is not approved by the City and the Missouri Division of Health; (5) engage in the business of collecting, transporting, processing or disposing of solid waste within the corporate limits of the City without a permit from the City, or operate under an expired permit, or operate after a permit has been suspended or revoked.

SECTION 8. SERVICE CHARGES

There is hereby imposed, for the collection and disposal of solid waste, a service charge for each dwelling unit and each commercial establishment to which such service shall be provided under the provisions of this ordinance. The service charge for collection of residential solid waste shall be in the amount of (\$ _____) per calendar month. The service charge for each commercial establishment will be determined by the (Director) on the basis of quantity and characteristics of material, point of pickup, and time required to collect the solid waste if service is performed by the City.

The service and service charge shall be terminated upon presentation of satisfactory proof to the (Director) that any such dwelling unit or establishment is unoccupied, and shall be commenced upon renewed occupancy thereof.

The system of services established by the provisions of this ordinance hereof is designed as an integral part of the City's program of health and sanitation, to be operated as an adjunct to the City's system for providing potable water and the City's system for providing sewerage disposal. The City may enforce collection of such charges by bringing proper legal action against the occupant of any premises which has received such services, to recover any sums due for such services plus a reasonable attorney's fee to be fixed by the Court.

The service charge herein provided for is hereby imposed upon the occupant of each dwelling unit receiving such service under the provisions of this ordinance and billing therefor shall be made to the person contracting for City water and/or sewerage service or for other water service or otherwise providing water service to each such dwelling unit. In the absence of information that such person is neither the owner nor the tenant of such dwelling unit, in which event billing therefor shall be made to the owner. Service charges shall be payable to the department empowered to collect service charges imposed by the City.

(More specific information should be provided here explaining how the individual City will collect the service charge, such as billing with the water bill, electric bill, sewer bill, combination, etc., and the frequency of billing.)

SECTION 9. PENALTIES

Any person violating any of the provisions of this ordinance, or any lawful rules or regulations promulgated pursuant thereto, upon conviction, shall be punished by a fine of not less than five dollars (\$5.00) nor more than five hundred dollars (\$500.00); provided, that each day's violation thereof shall be a separate offense for the purpose hereof.

SECTION 10. BONDS

(Bonds are suggested for permits to collect solid waste and to operate processing or disposal facilities. The amounts and types should be

determined by the City. Types of bonds which should be considered are performance bonds, and payment bonds.)

SECTION 11. REPEALS

The following ordinances are hereby repealed:

(list specifically)

SECTION 12. SAVINGS CLAUSE

Nothing in this ordinance shall be deemed to affect, modify, amend or repeal any provision of any ordinance administered by the _____ Health Department, or other department, board, commission, or agency of _____ unless that ordinance is specifically repealed in Section 11.

SECTION 13. SEVERABILITY CLAUSE

The provisions of this ordinance are severable and if any provisions or part thereof shall be held invalid or unconstitutional or inapplicable to any person or circumstance, such invalidity, unconstitutionality or inapplicability shall not affect or impair the remaining provisions of this ordinance.

This ordinance shall become effective upon _____, 19____.

PASSED AND APPROVED THIS _____ day of _____,
19_____.

Mayor

ATTEST:

City Clerk

Approved as to form and legality:

Title

APPENDIX XI
MODEL CONTRACT FOR
RESIDENTIAL SOLID WASTE COLLECTION
MISSOURI STATE DEPARTMENT OF HEALTH

THE DIVISION OF HEALTH OF MISSOURI
of the Department of Public Health and Welfare

MODEL CONTRACT FOR RESIDENTIAL SOLID WASTE COLLECTION
(For use with Solid Waste Management Ordinance, Form E 15.13-Rev. 8/72)

THIS AGREEMENT, made and entered into this _____ day of _____, 19____, by and between the City of _____, Missouri, hereinafter called 'City' and _____, hereinafter called 'Contractor.'

WITNESSETH THAT:

In consideration of the premises and of the mutual promises, covenants and agreements herein contained, the adequacy and sufficiency of which are hereby acknowledged and confessed, the parties hereto do mutually promise, covenant and agree as follows:

1. The term of this contract shall commence on _____, 19____, and shall terminate on _____, 19____.
2. During the term of this contract, contractor shall collect, remove and dispose of all residential solid waste (as defined in Ordinance No. ____) in the City of _____, and shall furnish all labor, vehicles, tools equipment and any other necessary facilities therefor in accordance with the terms and conditions of this agreement, schedule of rates, and Ordinance No. _____, as amended to date, of the City of _____, which said schedule of rates and ordinance are attached hereto and made a part hereof.
3. Contractor shall furnish to City, and maintain during the term of the Contract, a performance bond acceptable to City in a penal sum of \$_____ with good and sufficient surety acceptable to City and conditioned upon Contractor performing his duties and obligations provided for in this agreement. Contractor shall provide for each vehicle used in the work covered by this agreement liability insurance in companies and form satisfactory to the City in a sum of not less than \$_____ for any one person and the sum of \$_____ for any two or more persons who may be injured in any one accident, and the sum of \$_____ for any property damage at any time by reason of the carelessness or legally recognizable negligence of the driver or operator of each such vehicle used in the work covered by this agreement. Such insurance shall be maintained

in force during the term of this contract. Said insurance shall specifically name the City of _____, as an insured party under said policies, and said insurance shall be carried in a firm or corporation which has been duly licensed or permitted to carry on such business in the State of Missouri. A verified copy of such insurance policy or policies shall be filed with City, together with the certificate of the insuror that the policy or policies are in full force and effect and that same will not be altered, amended or terminated without thirty (30) days' prior written notice having been given to City. Contractor shall furnish City with adequate evidence that Contractor has obtained and is maintaining in force Workmen's Compensation insurance as prescribed by the law of the State of Missouri.

4. Contractor shall pay the sum of _____ Dollars (\$_____) as liquidated damages to the City for each and every day that the Contractor shall fail or refuse to perform his duties and obligations or to comply with the provisions of the contract documents, which said damages shall be deducted from any sums of money that may be due or shall become due to the Contractor under this agreement, and the Contractor shall further pay as liquidated damages the sum of \$_____ for each dwelling unit pickup point which, after investigation by City, has been determined by it to have been missed on any collection day; provided, however, that Contractor shall not be penalized in said amount of \$_____ for a missed collection point if a pickup at any such pickup point is made within 24 hours of the appointed pickup date, and provided further that Contractor shall not be so penalized, as hereinabove provided, if such failure shall be caused by fire, riots, civil commotion or acts of God.

5. If a holiday occurs, or falls, on week days on which the employees of the Contractor are not working, then the collection ordinarily made on that day by said Contractor shall be made by said Contractor on the next succeeding day, it being the intent of this agreement that the occurrence of said holiday shall not excuse the said Contractor from making _____ () collections per week from each dwelling unit.

6. Contractor shall indemnify and hold harmless the City from any liability, claim, damage or cause of action which may be sustained or asserted against said City as the result, directly or indirectly or in any manner, of the performance or failure of performance on the part of Contractor.

7. In the event that Contractor shall fail or refuse to perform his duties and obligations, or shall become insolvent or shall become the subject of a proceeding in bankruptcy (including any proceeding under Chapter 10 or Chapter 11 of the Bankruptcy Act), or shall become the subject of any proceeding for the appointment of a receiver, or in the event of an assignment by Contractor for the benefit of its creditors, or the taking of its trucks, equipment, vehicles and other facilities used in connection with the performance of the work under any execution against Contractor, in such events, City may at its option upon five days' written notice declare the Contractor to be in breach of his agreement and City may terminate the agreement and declare same cancelled and terminated and shall, in addition, be entitled to recover damages and take such other actions and seek such other remedies as may be permitted by law.

8. The contract shall not be assignable or transferable by Contractor, nor shall any services be performed by a subcontractor for Contractor without the consent in writing of City.

9. In consideration of the full and complete performance of this contract by Contractor and all of the work and services to be performed hereunder, in conformity with the terms and conditions of this agreement, City shall pay to Contractor all sums due to him in accordance with the attached schedule of rates, payment to be made on the _____ day of each month. Service shall be extended to all new or additional units immediately upon request for service. The Contractor shall provide this extension of service for the same unit price as specified in the schedule of rates. The number of units specified in this contract may also be reduced when it is determined by the City that such units are no longer generating solid waste.

10. Multiple housing facilities with more than _____ () dwelling units and all commercial establishments, shall not be included in this contract. Said multiple housing facilities and commercial establishments within the boundaries of the City shall contract for services on an individual basis, and shall not be construed to be part of this agreement.

11. All solid wastes collected by the Contractor shall be disposed of at a processing facility or disposal area approved by the City and complying with all requirements of the Missouri Division of Health.

12. The Contractor shall file a schedule of collection routes and days of collection for each route with the city clerk.

13. This agreement, the performance bond, schedule of rates and Ordinance No. ____ as amended to date, comprise the contract between the parties. The Contractor shall fully comply with all of the requirements of each such document whether same is contained in the other documents or not.

IN WITNESS WHEREOF, the parties hereto have executed this agreement the day and year first above written.

CITY OF _____

BY _____
CITY

ATTEST

(Company Name)

BY _____
CONTRACTOR

CITY CLERK

SCHEDULE OF RATES

CONTRACT BETWEEN CITY OF _____

AND (_____ Company Name _____)

YEARLY ESCALATING* CONTRACT - FIRST YEAR

- I. _____ a week pickup of solid waste, except bulky rubbish as defined in Ordinance No. _____, from all dwelling units included in this contract. At least _____ () hours shall intervene between collections. The point of collection shall be as specified in Ordinance No. _____, attached hereto. Number of units - _____ (Units may be added or reduced as provided by this contract.)

Cost per unit pickup

\$ _____ per month

Total Unit Cost

\$ _____ (plus or minus the cost of more or less units as requested by the City and provided for by this contract.)

- II. (Other - the City may wish to contract for additional services and could list the cost and service here. For example, the City may desire for the Contractor to provide an annual or semiannual special pickup of bulky rubbish as is done in many cities.)

YEARLY ESCALATING CONTRACT - SECOND YEAR

- I. _____ a week pickup of solid waste, except bulky rubbish as defined in Ordinance No. _____, from all dwelling units included in this contract. At least _____ () hours shall intervene between collections. The point of collection shall be as specified in Ordinance No. _____, attached hereto. Number of units - _____ (Units may be added or reduced as provided by this contract.)

Cost per unit pickup

\$ _____ per month

Total Unit Cost

\$ _____ (plus or minus the cost of more or less units as requested by the City and provided for by this contract.)

- II. (Other)

(* An escalating contract is an optional feature. The contract may be bid for the same amount each year, or escalated annually.)

APPENDIX XII
EXAMPLE SANITARY
LANDFILL CONTRACT

EXAMPLE SANITARY LANDFILL CONTRACT

THIS AGREEMENT made and entered into on the ____ day of _____, 197_,
by and between the (Public Agency), hereafter referred to as the Agency,
and (Private Agency), hereafter referred to as the Contractor.

WITNESSETH: Whereas, the Contractor is qualified to operate a Sanitary
Landfill for the disposal of solid waste and whereas the Agency desires
the Contractor to operate a Sanitary Landfill Operation. Now therefore,
in consideration of the mutual covenant and agreements contained herein
and of the consideration paid and to be paid to the Contractor as set
forth herein, the Agency and the Contractor agrees as follows:

1. Site Disposal

All solid waste that is required to be disposed of by the
Sanitary Landfill method shall be disposed of at the
following described location:

(Herein follows a complete legal description of the site
such as: Section __, Township __ North, Range __ West.)

2. Inspection

The Agency may make inspections of the site through designated
persons at any time desired by the Agency.

3. Operation of Site

The Contractor shall have the exclusive right and responsi-
bility for the operation of the disposal site in accordance
with provisions of this agreement and applicable State Laws
and Regulations during the term of this agreement.

4. Compliance with Laws

The Contractor shall operate the site in compliance with all the Laws and Rules of the Iowa Department of Environmental Quality, including any and all permits required for this operation, and the rules and regulations of the County Board of Health. Copies of such laws and regulations will be furnished the Contractor to the best ability of the Agency and shall include new Legislation and Amendments to existing Legislation.

5. Labor and Equipment

The Contractor is to furnish all labor, tools and equipment necessary for the operation of the site. The operator shall insure that an attendnat is on duty at all times the site is open to the public. The site shall be open to the public a minimum of ___ days per week, one of which being Saturday. Each day the site is open for public it shall be open a minimum of _ hours.

6. Maintenance

The Contractor shall construct and maintain an all weather access road. The road shall be kept in such condition that it will be open to travel during all forms of weather. The Contractor shall promptly remove snow from the access road and parking areas, shall maintain all fences and gates, and shall maintain all areas within the immediate landfill property.

7. Material to be Disposed Of

(This section will setforth those items or materials which will not be accepted and those which will be accepted and any special rates which will apply.)

8. Method of Disposal

The operation shall be performed in the manner setforth in any and all permits or amendments to permits issued by the Iowa Department of Environmental Quality.

9. Books and Records

The Contractor shall keep books and records detailing all costs and income pertaining to the operation of the Landfill Site. These books and records shall be reviewed by the Agency or its representative at least once per calendar year.

10. Changes in Laws or Regulations

In the event that compliance with subsequent statutes, ordinances or regulations result in a change in operating costs, the parts hereto agree to renegotiate this agreement so that the compensation herein shall reflect such changes.

11. Term of Agreement

The term of this agreement shall be for three years. Said term shall commence on the date the said site is ready for public use or such other date as the parties shall mutually agree on in writing. It is agreed between parties that after one full year of operation the parties shall review the entire agreement to the end that the said operation is meeting the standards set out by the various laws and regulations. The Agency shall also review the books and records the first year of operation. If it is determined that the Contractor is making excessive profits, the compensation referred to in this agreement shall be decreased appropriately.

12. Performance Bond

The Contractor shall furnish a Performance Bond for the faithful performance of this agreement. Said Bond to be executed by a Surety Company licensed to do business in Iowa and to be in the penal sum of \$_____. Said Bond to be certified annually to the Agency and the Iowa Department of Environmental Quality, and shall indemnify the Agency against any loss resulting from the failure of performance by the Contractor not exceeding the total amount of the Bond.

13. Liability Insurance

The Contractor shall carry Liability Insurance which save harmless the Board and protect the public and any person from injury sustained by reason of the prosecution of the work or the handling or storage of materials therefore. The Contractor is to carry Workman's Compensation Insurance coverage on all Contractor's employees engaged in work on the Landfill Operation. Proof of all insurance is to be furnished the Agency by Certificate of Insurance with minimum cancellation time of ten days. The insurance required shall evidence the following protection:

1. Public liability covering all operations performed by persons employed by the Contractor, by any Sub-Contractor or his employees or by any other independent Contractor used by the Contractor herein.
2. Motor vehicle, bodily injury, liability coverage and property damage liability coverage on all motor vehicle employed on this project, whether owned by the Contractor or by other persons, firms or corporations.

3. Minimum protection coverage - Public liability, \$100,000 per person, \$200,000 per accident. Motor vehicle, \$100,000 per person, \$200,000 per accident. Property damage - \$50,000 per accident.

14. Standards of Performance

In the event the Contractor fails to dispose of materials herein for a period in excess of two days and provided said delay is not due to causes beyond the control of the Contractor the Agency may, at it's option after written notice to the Contractor, take over and operate any or all of the Contractor's equipment and manage the Landfill Operation until the Contractor is again able to carry out it's part of the operation. Any cost incurred by the Agency shall be deducted from the agreed payment.

During such periods the liability of the Agency to the Contractor for loss or damage for such equipment so used shall be that of a bailee for hire. Ordinary wear and tear being specifically excepted from such liability. The liability of the Contractor to third persons shall cease and all claims or demands arrived at out of the operation and/or control of the site shall be directed solely to the Agency.

Provided, however, if the Contractor is unable for any cause to resume performance at the end of thirty days, all liability of the Agency under this contract to the Contractor shall cease and the Agency shall be free to negotiate with others for the operation of a Sanitary Landfill. Such agreement with another Contractor shall not release the Contractor herein of his liability to the Agency for breach of this agreement.

15. Arbitration

All controversies arising out of this agreement or relating thereto or breach thereof shall be settled by arbitration as provided in Chapter 679 of the Code of Iowa, 1973.

16. Assignment

No assignment of this contract or any right occurred under this contract shall be made in whole or part by the Contractor without the expressed written consent of the Agency. In the event of assignment, the assignee shall assume the liability of the Contractor.

17. Bankruptcy

Bankruptcy of the Contractor, voluntarily or involuntarily or insolvency of the Contractor shall terminate this agreement.

18. Right to Require Performance

The failure of the Agency at any time to require performance by the Contractor of any of the provisions of this agreement shall not be considered as a modification or alteration of the agreement or held to be a waiver in any manner of any succeeding breach or of any provisions of the agreement.

19. Payment

For the work described herein the Contractor will be paid an amount of \$_____ per year. Payment will be made in two equal installments. The first installment will be paid May 15, and the second will be paid October 15th.

20. Payments Withheld

The Agency may withhold any or any part of payments due the Contractor that may be necessary to protect the Agency from loss on account of:

1. Defective work not remedied.
2. Claims filed against the Contractor or reasonable evidence indicating the probable filing of claims.
3. Failure of the Contractor to make prompt payment of equipment, materials or labor.

In this respect part or total payment to the Contractor is not to constitute a waiver or acceptance of defective work or materials not in accordance with the term of this agreement.

21. Agency's Right to Terminate Contract

If the Contractor should persistently refuse or fail to supply equipment and labor as set forth herein or should persistently disregard laws and regulations or the term of this agreement the Agency may without prejudice to any other right or remedy and after giving the Contractor seven days notice in writing terminate this agreement and take possession of the premises and finish the work to be done at the time by whatever means it deems proper under the circumstances.

22. Transfer Stations

The Contractor shall service transfer stations in accordance with the Rules and Regulations set down by the Iowa Department of Environmental Quality at various locations within the county. It is agreed that the Agency will pay a reasonable monthly lease rate for each transfer station requested and

furnished. It should be understood that the Contractor will not be expected to service more than ten locations within the county. If request is made in writing by the Agency for more than ten locations, extra compensation will be allowed.

23. Effective Date

The effective date of this agreement shall be the date the Contractor certifies to the Agency that the operation is ready to receive the solid waste referred to in the agreement, which said date shall not be more than thirty days after the date of the actual execution of this agreement.

_____ COUNTY BOARD OF SUPERVISORS

By _____, Chairman

State of Iowa)
_____ County) ss:

_____, Secretary

On the _____ day of _____, 197_, before me, a Notary Public, personally appeared _____ and _____, known to me to be Chairman and Secretary, respectively, of the _____ County Board of Supervisors and who acknowledge they executed the foregoing instrument upon the authority and behalf of the Said Board and they acknowledge that it was the voluntary act and deed of Said Board.

Notary Public

State of Iowa) ss:
_____ County)

On the ____ day of _____, 197_, before me, a Notary Public, personally appeared _____, to me known to be the person named in the who executed the foregoing instrument, and acknowledged that he executed the same as his voluntary act and deed.

Notary Public

APPENDIX XIII

STANDARD OPERATING PROCEDURE BETWEEN

IOWA GEOLOGICAL SURVEY AND ENVIRONMENTAL ENGINEERING SERVICE

OF THE IOWA STATE DEPARTMENT OF HEALTH

STANDARD OPERATING PROCEDURE BETWEEN
IOWA GEOLOGICAL SURVEY (IGS)
AND ENVIRONMENTAL ENGINEERING SERVICE
IOWA STATE DEPARTMENT OF HEALTH (ISDH)

FOR

REVIEWING ENGINEERING PLANS,
SPECIFICATIONS AND SUPPORTING DOCUMENTS
SUBMITTED TO THE ISDH FOR PROPOSED
SANITARY LANDFILLS OR OTHER SANITARY DISPOSAL PROJECTS
AS REQUIRED BY THE DEPARTMENTAL RULES
RELATING TO SANITARY DISPOSAL PROJECTS

When a completed application for a sanitary disposal project (SDP), with plans, specifications and supporting documents as outlined in Chapter 3 of the rules relating to sanitary landfills, is submitted to ISDH by the applicant or his engineer, along with samples of drillings collected at the proposed site in accordance with Section 3.1(4)a of the rules, the following procedure will be followed:

1. The ISDH will enter the date received and the assigned project number on the top right hand side of the outside sheet of the application, plans, specifications and supporting documents as well as on a tag attached to the carton of drilling samples. Each set of documents will be serially identified as one of three such sets which the applicant or his engineer is required to submit.
2. The ISDH will submit complete set No. 3 of the application, plans, specifications and supporting documents along with the complete carton of drilling samples to the IGS at Iowa City, directed to the attention of the State Geologist, for evaluation of the geological and hydrological conditions relating to the proposed site. If samples of drillings collected during a site survey are delivered directly to the IGS Offices in Iowa City, a receipt will be furnished by IGS to ISDH as proof of compliance with Section 3.1(4)a of the rules.
3. The IGS will evaluate the geological and hydrological data and drill samples and furnish ISDH with a written evaluation within fifteen (15) working days from the date of receipt of such application and other documents by IGS. The application, plans, specifications and supporting documents provided to IGS will be returned to ISDH with the IGS evaluation. The IGS will furnish a copy of its evaluation to the applicant or his engineer upon request. The IGS evaluation is merely advisory to the ISDH and does not constitute approval or disapproval of the application.
4. The IGS will retain the drill samples submitted with the application.

5. After the ISDH has reviewed the application, plans, specifications and supporting documents and the ICS evaluation, the ISDH will either issue a permit for the project, return the application for additional information, or deny the permit. Any permit issued for a sanitary disposal project may be conditioned upon such requirements as the Department may consider necessary.
6. The original permit letter will be sent to the applicant; a copy of the permit letter will be sent to the following:
 - a. The project engineer certifying the plans in compliance with Chapter 114, Code of Iowa.
 - b. The appropriate county board of health.
 - c. The appropriate ISDH Regional Office.
 - d. The ICS.
 - e. The ISDH files.
7. All three (3) sets of applications, plans, specifications and supporting documents will be stamped with the appropriate STP Permit Number and signed by the Commissioner. One (1) set will be returned to the applicant's project engineer; one (1) set will be forwarded to the appropriate ISDH Regional Office; and one (1) set will be retained in the ISDH Office for permanent record.

SIGNED ON

25 April 1972

BY

Arnold M. Reeve, M.D., M.P.H.,
Commissioner of Public Health
Iowa State Department of Health

Samuel J. Tutthill

Samuel J. Tutthill, Ph.D.
Director and State Geologist
Iowa Geological Survey

ATTESTED BY:

Kenneth M. Karch

Kenneth M. Karch, M.P.H., M.S., P.E., CHIEF
Environmental Engineering Service
Iowa State Department of Health

APPENDIX XIV

GUIDELINES FOR PREPARATION OF

SANITARY LANDFILL PERMIT APPLICATION

PART I

GUIDELINES FOR THE PREPARATION OF SANITARY LANDFILL PERMIT APPLICATION

These guidelines relate primarily to Chapter 455B, Code of Iowa, 1973 and the Departmental Rules, which were issued pursuant to the authority of Section 406, Code of Iowa. It is assumed that the selection of the site has been preceded by the determination of the waste generation centroids and that the merits and limitations of the site have been fully assessed.

The sequence suggested in the guidelines is intended to correspond as closely as possible to the steps that are taken in preparing an application for a sanitary landfill permit. The additional data suggested, especially with respect to wells, may be difficult to obtain. It is hoped, however, that it may provide a basis for a more comprehensive submission where, in the opinion of the design engineer, the characteristics of the site make it necessary to compile more complete information.

It is suggested that the first page of the application should provide the data requested in our present "APPLICATION TO ESTABLISH AND OPERATE A SANITARY DISPOSAL PROJECT". Three copies of this application form are required. This form provides the information necessary with respect to legal description, area of the site and ownership.

Instructions on ordering aerial photographs prepared by Mr. Marvin Smith of the ASCA office in Des Moines are attached.

A listing of consulting engineers in Iowa may be obtained from the State Board of Engineering Examiners, State House, Des Moines, Iowa 50319.

Assistance in landscaping and architectural design may be obtained from the following associations:

1. American Society of Landscaping Architects, 3116½ Ingersoll Ave., Des Moines, Iowa 50312
2. Iowa Nurserymen's Association, 7261 Northwest 21st Street, Ankeny, Iowa 50021

Part II provides excerpts dealing with the "state of the art" in landfill, engineering and design. The selection of excerpts is of necessity subjective; another person may have chosen completely different subject matter. It is hoped, however, that the implementation of the principles described should help to promote highest possible standards in the design and management of solid waste disposal sites in Iowa.

PRELIMINARY SITE EVALUATION

This section deals with site location requirements which can be evaluated with the aid of a topographical map and a preliminary field survey. Requirements are listed below:

1. Site Location

The landfill must be:

- a. outside of a flood plain or shoreland (subsection 5 page 7).*
- b. more than 1000 feet from private wells (subsection 6 page 7).
- c. one mile or more from a municipal well (subsection 7 page 7).
- d. at least one mile upstream or 1000 feet downstream from a municipal water intake (subsection 7 page 7).
- e. five hundred feet from a state highway right-of-way (subsection 8 page 7).
- f. one thousand feet from a federal highway right-of-way (subsection 8 page 7).
- g. 500 feet from an occupied dwelling (subsection 9 page 7).

Where the location of the site does not meet these requirements, indicate the remedial action proposed, submit evidence showing why an exception can be justified or alternatively how the site can be engineered to comply.

2. Zoning and Land Use

Zoning and land use are referred to in section 2.4(5) page 4 and section 3.1(1) page 5.

- a. Submit an outline map showing land use and zoning of the site and the adjoining area.
- b. Attach a copy of a zoning permit signed by the members of the Board of Adjustment in cases where a permit is required. Please confirm in writing where a permit is not required.

3. Aerial Photo

Plot or identify the following physical features:

- a. Show the permanent improvements on a 1"=660' aerial photo or on a supplementary map.
- b. Show the actual separation distances from the landfill site where they are equal to or less than the applicable legal limits described under Site Location in #1 above.

3. Aerial Photo* (continued)

- c. All wells within $\frac{1}{2}$ mile, including abandoned wells.
- d. Municipal wells within one mile or a municipal water intake within one mile upstream or 1000 feet downstream.
- e. State and Federal highways.
- f. Homes and buildings.
- g. Lakes and ponds, water courses and wet lands, dry runs and rock outcroppings.
- h. USC & GS or USGS bench marks.
- i. North arrow (3.1(1) page 5).

*Photos may be ordered from Eastern Aerial Photograph Laboratory, Program Performance Division, ASCS-USDA, 45 South French Broad Avenue, Asheville, North Carolina 28801.

Please refer to attached materials. Order forms and advise may be obtained from the State or County A.S.C.S. offices.

SITE INVESTIGATION

Public agencies may obtain available well logs and hydrologic data from the Iowa Geological Survey (319/338-1173) or through the Department of Environmental Quality.

Iowa Geological Survey has also offered to assist and advise the DEQ with respect to initial site selection. Resistivity tests, which aid in determining the nature of underlying soil material, will also be undertaken by IGS provided there is evidence that a purchase option has been executed with the vendor.

1. Report on Soils and Geology

Paragraph 3.14(a) calls for drilling 50 feet into homogeneous till or 5 feet into bedrock. A stratigraphic section drawing and a drilling location plan are also required. In addition samples at 5 feet intervals must be submitted, together with the name of the persons responsible for this phase of the investigation.

The laboratory analysis required are:

- a. Particlesize distribution - (ASTM designation D422-63 provides clay fractions down to 2 microns in size).

The sample should be selected from the confining strata nominated to retard downward movement of water and from such other strata that are representative of the stratigraphy of the site.

- b. Atterberg limits - ASTM designation D423 and D424 (see vulnerability of water resources to pollution page 5).
- c. Permeability - Where permeability data is required, samples should be from the confining unit selected in (a) above and from such additional strata which are significant from the standpoint of hydraulic continuity with wells or bodies of water.
- d. Characteristics of cover material - paragraph 3.14(b), page 6, requires a description of the cover material. An SCS soil map of the site which shows the soil type, slope and degree of erosion should be submitted. The information in soil reports also provides a valuable aid in site selection and in the investigation of the underlying soils.

2. Evaluation of the Hydrology of the Site

Water table and related information - Section 3.1(4)f(2) page 6 specifies a five foot separation in distance between the high water table* and the base of the landfill.

The water table elevation and related data must of necessity be obtained in conjunction with soil drilling. The hydrology report should include:

- a. Ground elevation of the drill hole.
- b. Elevation of the water at the end of drilling.
- c. The time taken to reach a static level.
- d. The elevation of the static water table.
- e. Depth to the water bearing horizon and the nature of the water bearing material.

Vulnerability of water resources to pollution - It is incumbent on the design engineer at this point to assess the vulnerability and importance of local and regional water resources in relation to the natural protection offered by the soils and the geology of the site (or the protection which can be achieved with engineering modification.)

Sections 3.1(4)f(1) to (3) deal with the vulnerability of local or regional water resources to pollution in terms of:

- a. The extent of lateral hydraulic connection with shallow wells (subsection f(1) page 6).
- b. The separation distance between the base of the proposed landfill and the high water table (subsection f(2) page 6 stipulates at least five feet). A concurrent problem may be the presence of perched water especially in the Cary till in Iowa.
- c. The extent of surface or subsurface connection with standing or flowing water (subsection f(3) page 6).

Subsection f(4) page 6 describes the implementation of Darcy's Law** to determine the natural protection that the soil offers against downward leakage.

*Refer to the Rules for a definition of the high water table.

**Permeability data based on published averages for soil materials are not acceptable.

A deficiency in till depth, or in the homogeneity of the till or where the underlying soil materials are highly or moderately permeable will require proof that downward leakage will not exceed 0.04 cubic feet of liquid per square foot per day and that there is no lateral hydraulic continuity with water resources in the area.

The presence of a limestone subcropping aquifer would have the same effect as a till section of inadequate depth.

A combination of a high degree of vulnerability and low natural protection therefore requires a more detailed analysis of the possible adverse effects on water resources. Suggested data for study in the case of private wells (within $\frac{1}{2}$ mile) and municipal wells (within $1\frac{1}{2}$ miles) of the site are as follows:

- a. Ground elevation
- b. Water source
- c. Static water elevation
- d. Depth to water bearing horizon
- e. The nature of the water bearing materials

In the case of municipal wells both the static and pumping water levels are required.

It is the responsibility of the design engineer to demonstrate that the extent of hydraulic connection between the site and the wells in the area and the static or flowing water in the area, if any, are such that the water resources are being adequately protected.

3. Preliminary Site Approval

The data assembled in the previous sections, including soil and/or bedrock samples, may be submitted for preliminary approval at this stage at the discretion of the design engineer.

SANITARY LANDFILL PLAN SUBMISSION

Drawings should provide the following information:

- a. Boundaries of the disposal site and the location of bore holes.
- b. Initial contours at appropriate intervals (2-5 feet).
- c. Final contours at intervals corresponding to (a) above.
- d. Cross section drawings showing proposed excavation and fill, including the calculation of the total volume of soil cover required, the volume available at the site and the source of additional cover where it is needed.
- e. The scheme of development of the site using a lettered or numbered grid or a numerical progression, commencing with the initial construction of a berm or trench and initial drainage, and ending with the exact sequence of cell construction or area fill that is being proposed.
- f. Evidence that the requirements of the Conservancy District's Law, Chapter 467D, Code of Iowa, 1973, have been ascertained by contacting the local Soil Conservation District and that the limits on soil loss due to wind and water erosion will not be exceeded.

Prevention measures include the planting of perennial grasses, legumes, shrubs or trees, the establishment of grassed waterways and the construction of terraces or other permanent soil and water practices approved by the State Soil Conservation Committee.

- g. The location of winter cover stockpile, wet weather area, car hulk area (if any), passenger car drop boxes, fencing and the 20 foot separation distance from the adjoining property.
- h. Location of tile drains (if any) including the alternative method proposed to drain adjoining areas, if tile lines are to be removed or blocked.
- i. Proposed all weather approach road and internal road network between the entrance and the deposit area or trench.
- j. Intermediate and ultimate land use.
- k. Landscape site development plans where required.
- l. Monitoring for leachate - The degree of protection afforded to water resources is indicative of the need for monitoring to determine whether the leachate produced, if any, is detrimental to the environment. Knowledge of ground water movement will help in determining the proper location for monitoring wells.
- m. Monitoring the scheme of site development - Determine whether there is a need for monitoring, by way of ground control, to ensure that the operational plan is being followed. In addition, state whether an agreement or an understanding has been reached with the client in regard to monitoring.

OPERATIONAL PLAN SUBMISSION

Whenever possible the design engineer should ensure that the manager and landfill foreman are fully conversant with the scheme of development and that the site is surveyed and staked to help ensure compliance.

The operational plan submission should include:

- a. An organization chart showing the chain of command, duties of all personnel and a personnel manning table (subsection 3.1(4)i page 6).
- b. A recommended list of equipment selected on the basis of earth hauling distances, the volume of solid waste and the soil and weather conditions (subsection 3.1(4)i page 6).
- c. A description of all fire fighting equipment and facilities proposed and the actual arrangements that have been made with a local fire protection agency (subsection 3.1(4)i(11) page 9).
- d. A description of the communication facilities provided (subsection 3.1(4)i(12) page 9).
- e. A description of the sanitary facilities and personnel and equipment shelter (subsection 3.1(4)i(13) page 9).
- f. A description of the proposed access fence, litter fence, gate with locks, sign and intended wording on the permanent sign (subsection 3.1(4)i(17) page 9).
- g. A statement that toxic, hazardous or radioactive materials shall not be deposited in the site unless explicit instructions are first obtained from the Executive Director of the Department of Environmental Quality (Section 2.4 (3) and (4) page 4).
- h. A statement that the applicant has been provided with a copy of the Rules.

OPERATING PROCEDURES

Describe operating procedures which must be followed and which are outlined in paragraphs 2.4(1) page 4 and 3.1(4)i pages 8 and 9, namely:

- 2.4(1) - Open dumping prohibited.
- 3.1(4)i(1) - Open burning prohibited.
- 3.1(4)i(2) - Deposition of waste to minimize leachate production.
- 3.1(4)i(3) - Confine dumping area.
- 3.1(4)i(4) - Even distribution of waste.
- 3.1(4)i(5) - Thorough compaction and 6 inches of soil daily.
- 3.1(4)i(6) - Provision of winter cover.
- 3.1(4)i(7) - Site grading and drainage.
- 3.1(4)i(8) - Maintenance of 20 foot separation distance from adjoining property.
- 3.1(4)i(9) - Effective control of vectors.
- 3.1(4)i(18) - Two feet of final cover.
- 3.1(4)i(19) - Finish grading and seeding.
- 3.1(4)i(20) - Notifying Executive Director prior to removal of equipment or completion.

APPLICATION TO ESTABLISH AND OPERATE A SANITARY DISPOSAL PROJECT

To: Department of Environmental Quality
Solid Waste Management Division
Lucas State Office Building
Des Moines, Iowa 50319

I. I (we) hereby apply for a permit to construct and operate a _____
(sanitary landfill,
_____ in compliance with the requirements of Chapter 455B, 1973, Code
incinerator, etc.)
of Iowa. This application pertains to a new facility ; to an existing non-conforming
facility .

It will serve a population of _____ and will be known as the _____

The legal description of the _____ acre site is _____ of
Section _____, Twp. _____, Range _____ in the County of _____.

Zoning status: _____

Site is owned by _____ or leased from _____.

II. To the best of my knowledge, the design of the above described sanitary disposal project
complies with the requirements outlined in the Departmental Rules.

Name of Engineer	Address	Phone	Date
------------------	---------	-------	------

Signature _____	(Engineer)	(Iowa Reg. Eng. #)	
-----------------	------------	--------------------	--

III. I certify that the construction and operation of the above described sanitary disposal
project will be in accordance with plans, specifications, and information submitted to and
approved by the Iowa State Department of Environmental Quality and with conditions which
are enumerated in the permit.

Name and Address of Legal Applicant	Phone	Date
-------------------------------------	-------	------

Signature _____	(Title)
(Applicant)	



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE
Room 937 Federal Building
Des Moines, Iowa 50309

January 31, 1973

Mr. John Charnetski
Department of Environmental Quality
Lucas Building
Des Moines, Iowa 50319

Dear Mr. Charnetski:

Agricultural Stabilization and Conservation aerial photography coverage of Iowa can be purchased only from the Eastern Aerial Laboratory at Asheville, North Carolina. Ordering information and assistance is available through the State or county ASCS offices. Delivery is direct from the laboratory to the buyer and delivery time is usually two to three weeks after receipt of the order.

Scale adjusted black and white aerial coverage of the respective county is in the custody of each county ASCS office. The photographs are used for farm acreage determinations but arrangements can usually be made with the county office for viewing a specific photo or photos at the office. The most recent flights vary in age from 1964 to 1972. The enlargements used by the counties are at a scale of 1"=600' except in Shelby, Audubon and Benton where the scale of the most recent flights is 1"=1000'.

The Iowa State ASCS Office in the Federal Building, Des Moines, has custody of contact prints comprising stereo coverage of the most recent flights for each of the Iowa Counties. Those contact prints are available for viewing,*but not for sale.

Sales information is provided on the attached form ASCS-441, Order For Aerial Photographs, which lists standard sizes, approximate scales and prices. Form ASCS-441 is available at the State or county ASCS Offices.

Prior to 1969 most of the ASCS aerial photographic coverage of Iowa had been produced at a scale of 1:20,000. Since 1969 several counties have been flown at higher altitudes resulting in coverage at scale of 1:38,000 or 1:40,000. We are attaching a report indicating by county the year of the most recent flight and the scale of the photography. The size and scale of available enlargements is dependent on the scale of the photography. Generally, four sections of land are centered on a negative for 1:20,000 scale while 16 sections are centered on a single negative at 1:40,000 scale.

Thus a 1"=660' enlargement on 24"x24" paper is an enlargement of a single negative while a similar 1"=660' enlargement at 1:40,000 scale covers about 1/4 of the area of a single negative. The 1:40,000 scale column in the table on Form ASCS-441 applies to both 1:38,000 and 1:40,000 scales.

In addition to the standard enlargements listed on Form ASCS-441, sectional enlargements are available as indicated in the quadrant example; ie., for 1:20,000 scale photography, a standard 1"=660' enlargement is furnished on 24"x24" paper at a current cost of \$4.50 without scale accuracy; a section enlargement of one quadrant of that photo comprising slightly over 1/4 of the total area would be available at a scale of 1"=330' on 24"x24" paper for the same \$4.50 price. Also available on this basis are five additional quadrant size positions on the negative: (1) exact center, (2) top center, (3) bottom center, (4) left center and (5) right center.

For the counties with 1:20,000 scale photography, sectional enlargements corresponding to each of four standard enlargements are available:

<u>Standard Enlargement</u>	<u>Sectional</u>	<u>Paper Size</u>
1"=1320'	1"=660'	13"x13"
1"=1000'	1"=500'	17"x17"
1"=660'	1"=330'	24"x24"
1"=400'	1"=200'	38"x38"

In addition, a sectional enlargement can be furnished covering a quadrant sized area but centered on a specific point on the photograph; such special sectionals must be ordered through the State ASCS office and cost double the price of the standard enlargement.

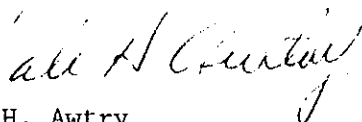
Mylar reproducibles are available in the above standard or sectional sizes but should be ordered and priced through the State ASCS office.

For 1:38,000 and 1:40,000 scale photography, sectionals at 1"=330' can be furnished but cover less than 1/4 of the total area of the photograph. They are printed on 38"x38" paper, cost double the price of the 1"=660' enlargement and must be ordered through the ASCS State office.

Photocopies which are photographic reproductions of part of a photograph are printed on ordinary 8 1/2"x11" bond paper. They are stocked in county ASCS offices for approximately a seven year interval between flights.

They may be purchased for \$1.00 each depending on their availability but will not be reproduced for sale. Due to paper shrink they cannot be furnished with scale accuracy.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Dale H. Awtry".

Dale H. Awtry
State Executive Director

Attachments

INSTRUCTIONS

IMPORTANT — On LABEL on face of order print or type items 1 thru 3 only.

IDENTIFICATION OF PHOTOGRAPHY

PAPER SIZE	QUANTITY	SYMBOL	ROLL NO.	EXPOSURE NO.
1	2	3	4	5
24" x 24"	1	D J D	3 A	96

Column 1. Enter paper size 9½" x 9½", 24" x 24" etc., When ordering indexes enter "Photo Index" and list sheet numbers and year of photography.

Column 2. Enter number of prints wanted from each exposure number.

Column 3, 4 and 5. Enter the symbol, roll number, and the exposure number of the negative. Exposure numbers may be listed in inclusive sequences. This information is in the upper right corner of each photograph and may be obtained from photo-index sheets or from the Agricultural Stabilization and Conservation Office in the county where the farm or area photographed is located.

* QUADRANT NUMBERING SYSTEM

D	A
C	B


(Area Covered by Negative)

Example: Your area of interest lies wholly within lower left quadrant, you should order ABC-2JJ: 7C. When more than one quadrant from the same negative is ordered, image overlap will be furnished.

If you do not know your area of interest as related to the negative, we suggest a visit to the ASCS office for assistance.

PRICES (Quoted prices are based on paper size)

Remittance is required before prints will be made, and must be by check, money order, or draft payable to ASCS. Stamps will not be accepted.

TYPE OF REPRODUCTION	SIZE	** APPROX. SCALE FROM 1: 20,000 PHOTOGRAPHY	** APPROX. SCALE FROM 1: 40,000 PHOTOGRAPHY	COST (per print)	
				1 - 25	EXCESS OVER 25
Contact Print 1/	9½" x 9½"	1" = 1667'	1" = 3334'	\$1.75	\$1.25
Enlargement	13" x 13"	1" = 1320'	1" = 2640'	3.00	2.50
Enlargement	17" x 17"	1" = 1000'	1" = 2000'	3.50	3.00
Enlargement	24" x 24"	1" = 660'	1" = 1320'	4.50	3.50
Enlargement	24" x 24"	1" = 330' * (Quadrant)	1" = 660' * (Quadrant)	4.50	3.50
Enlargement	38" x 38"	1" = 400'	1" = 800'	9.00	8.00
Photo Index (No. of sheets per county depends on size of county)	20" x 24"			3.00	3.00

** All enlargements are made at diameters to fit paper size unless scale accuracy is requested. For "scale accuracy" add \$0.50 per print.

1/ For polyester base paper (9½" x 9½" only) add \$0.75 per contact print.

2/ Applies to first 25 prints ordered regardless of size of order.

3/ Applies to each print in excess of 25. Quantity prices apply only when order is shipped to one address.

ADDRESS ORDERS FOR PHOTOGRAPHS OF THESE STATES

Western Aerial Photography Laboratory
Program Performance Division
ASCS-USDA
2505 Parley's Way, Salt Lake City, Utah 84109
Tel. Area Code 801, 524-5856

Arizona Nevada
Arkansas New Mexico
California North Dakota
Colorado Oklahoma
Hawaii Oregon
Idaho Texas
Kansas Utah
Louisiana Washington
Montana Wyoming
Nebraska

ADDRESS ORDERS FOR PHOTOGRAPHS OF THESE STATES TO:

Eastern Aerial Photography Laboratory
Program Performance Division
ASCS-USDA
45 South French Broad Avenue, Asheville, N.C. 28801
Tel. Area Code 704, 254-0961 Extension 610

Alabama Michigan South Dakota
Connecticut Minnesota Tennessee
Delaware Mississippi Virginia
Florida Missouri West Virginia
Georgia New Hampshire Wisconsin
Illinois New Jersey
Indiana New York
Iowa North Carolina
Kentucky Ohio
Maine Pennsylvania
Maryland Rhode Island
Massachusetts South Carolina

Orders for photography not held by Agricultural Stabilization and Conservation Service should be forwarded to the holding agency. If address is not known forward to the Coordinator of Aerial Photographic Work of the Department, ASCS, U. S. Department of Agriculture, Washington, D. C. 20250

Approximate Scale of Most Recent Iowa Photographic Coverage

IOWA CHECKSHEET * 1:20,000
1597 Townships

Check Digit, County Code Number of Townships	Year Last Flown	Scale	Check Digit, County Code Number of Townships	Year Last Flown	Scale
8 001 Adair 16	1967	*	6 101 Jefferson 12	1969	*
4 003 Adams 12	1966	*	2 103 Johnson 21	1970	*
9 005 Allamakee 18	1971	*	7 105 Jones 16	1970	*
5 007 Appanoose 16	1967	*	3 107 Keokuk 17	1969	*
1 009 Audubon 12	1968	*	9 109 Kossuth 28	1965	*
7 011 Benton 20	1969	1:45,000	5 111 Lee 15	1969	*
3 013 Black Hawk 17	1970	*	1 113 Linn 20	1970	*
8 015 Boone 17	1971	1:38,000	6 115 Louisa 12	1969	*
4 017 Bremer 14	1971	*	2 117 Lucas 12	1967	*
0 019 Buchanan 16	1970	*	8 119 Lyon 18	1968	*
6 021 Buena Vista 16	1968	*	4 121 Madison 16	1967	*
2 023 Butler 16	1964	*	0 123 Mahaska 18	1969	*
7 025 Calhoun 16	1972	1:40,000	5 125 Marion 13	1967	*
3 027 Carroll 16	1968	*	1 127 Marshall 17	1971	*
9 029 Cass 16	1966	*	7 129 Mills 13	1966	*
5 031 Cedar 17	1969	*	3 131 Mitchell 17	1971	1:38,000
1 033 Cerro Gordo 16	1970	1:38,000	9 133 Monona 19	1966	*
6 035 Cherokee 16	1968	*	4 135 Monroe 12	1967	*
2 037 Chickasaw 12	1971	*	0 137 Montgomery 12	1966	*
8 039 Clarke 12	1967	*	6 139 Muscatine 14	1969	*
4 041 Clay 16	1968	*	2 141 O'Brien 16	1968	*
0 043 Clayton 22	1970	*	8 143 Osceola 12	1968	*
5 045 Clinton 20	1969	*	3 145 Page 16	1966	*
1 047 Crawford 20	1968	*	9 147 Palo Alto 16	1972	1:40,000
7 049 Dallas 16	1967	*	5 149 Plymouth 24	1968	*
3 051 Davis 15	1969	*	1 151 Pocahontas 16	1972	1:40,000
9 053 Decatur 16	1967	*	7 153 Polk 18	1967	*
4 055 Delaware 16	1970	*	2 155 East Potta. 14	1966	*
0 057 Des Moines 11	1969	*	0 156 West Potta. 14	1966	*
6 059 Dickinson 12	1968	*	8 157 Poweshiek 16	1970	*
2 061 Dubuque 17	1970	*	4 159 Ringgold 17	1966	*
8 063 Emmet 12	1972	1:40,000	0 161 Sac 16	1968	*
3 065 Fayette 20	1971	*	6 163 Scott 14	1969	*
9 067 Floyd 13	1971	*	1 165 Shelby 16	1968	*
5 069 Franklin 16	1970	1:38,000	7 167 Sioux 23	1968	*
1 071 Fremont 14	1966	*	3 169 Story 16	1972	1:40,000
7 073 Greene 15	1972	1:40,000	9 171 Tama 21	1970	*
2 075 Grundy 14	1971	*	5 173 Taylor 16	1966	*
8 077 Guthrie 16	1967	*	0 175 Union 12	1967	*
4 079 Hamilton 16	1972	1:40,000	6 177 Van Buren 14	1969	*
0 081 Hancock 16	1972	1:40,000	2 179 Wapello 14	1969	*
6 083 Hardin 15	1971	*	8 181 Warren 17	1967	*
1 085 Harrison 20	1966	*	4 183 Washington 15	1969	*
7 087 Henry 12	1969	*	9 185 Wayne 16	1967	*
3 089 Howard 12	1970	1:38,000	5 187 Webster 21	1972	1:40,000
9 091 Humboldt 12	1972	1:40,000	1 189 Winnebago 12	1972	1:40,000
5 093 Ida 12	1968	*	7 191 Winneshiek 20	1971	*
0 095 Iowa 16	1970	*	3 193 Woodbury 24	1966	*
6 097 Jackson 18	1970	*	8 195 Worth 12	1971	1:38,000
2 099 Jasper 19	1967	*	4 197 Wright 16	1972	1:40,000